

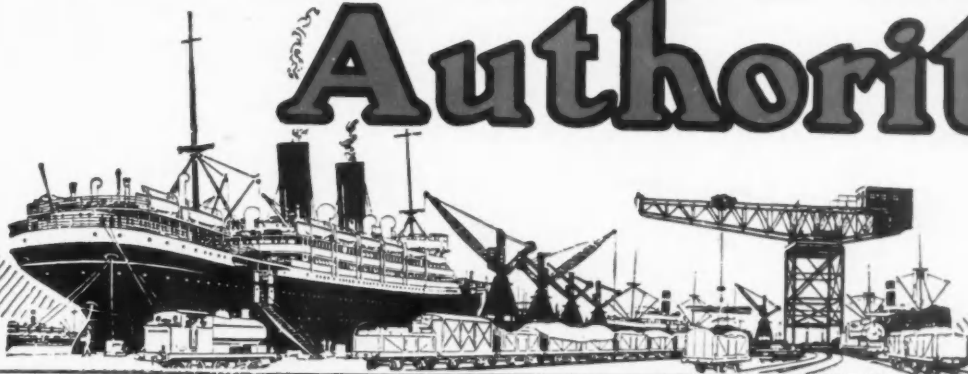
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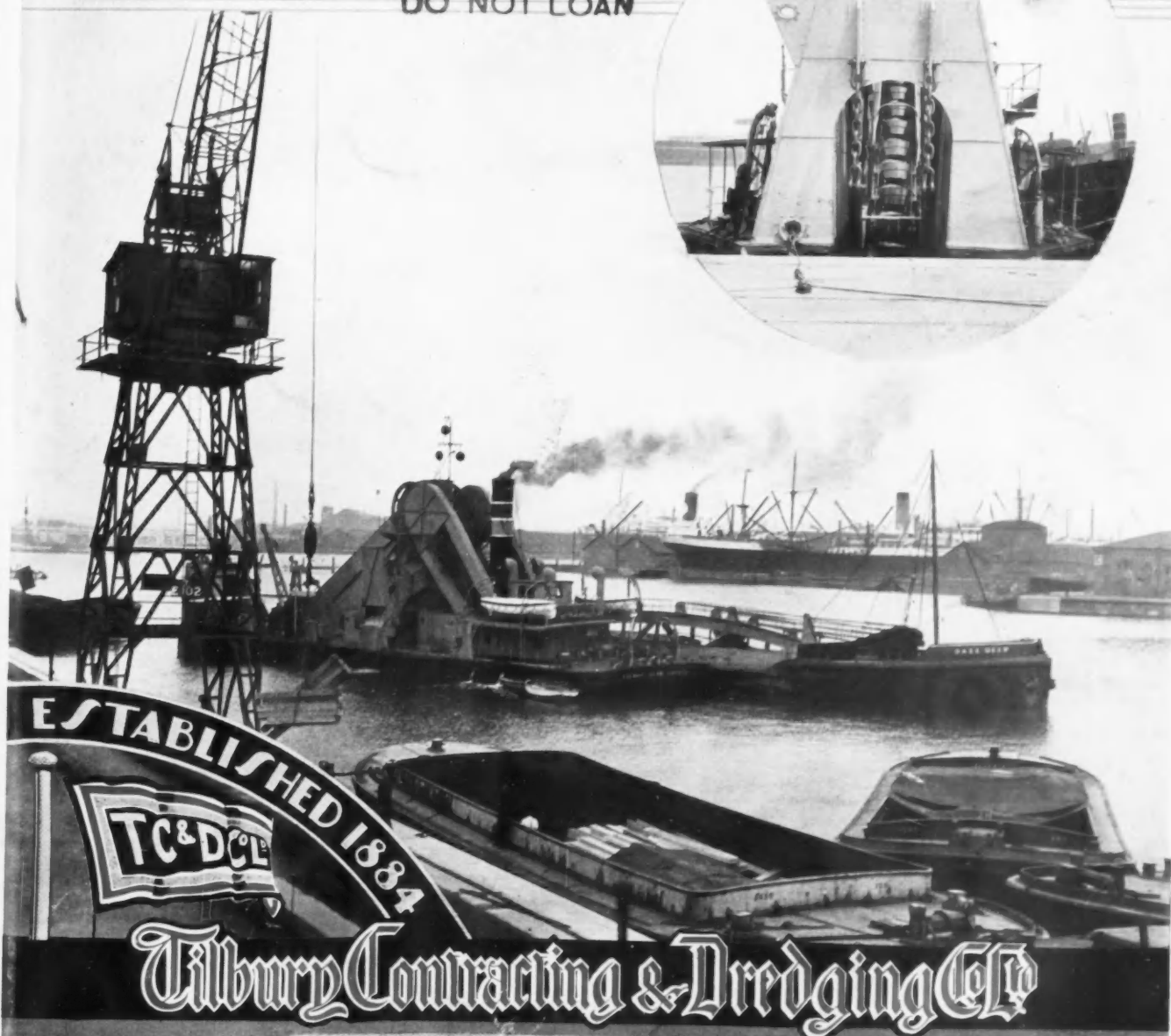
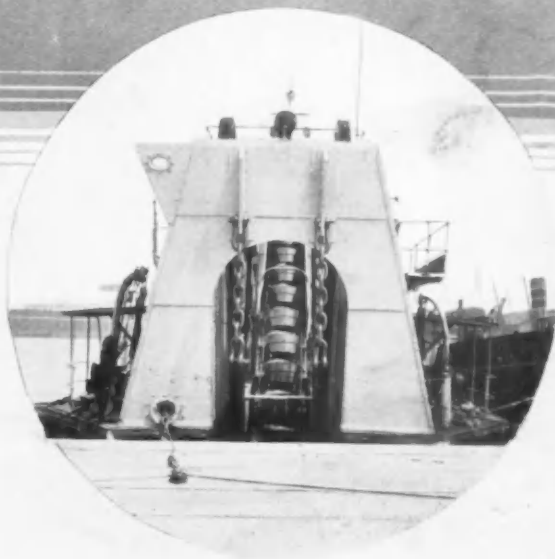


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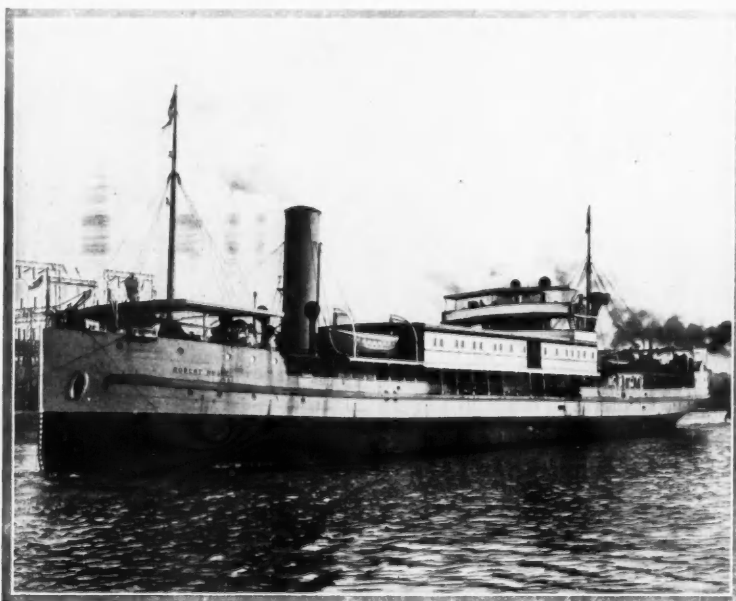
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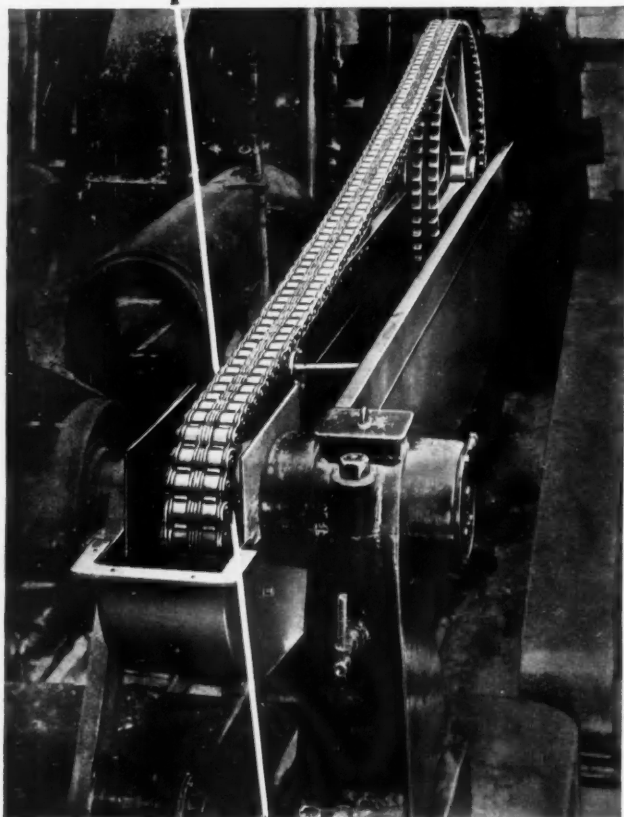
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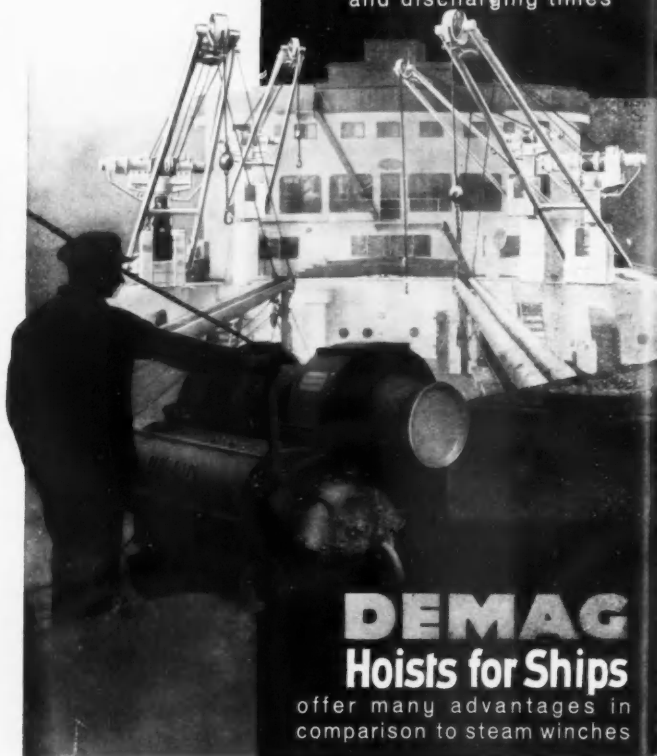
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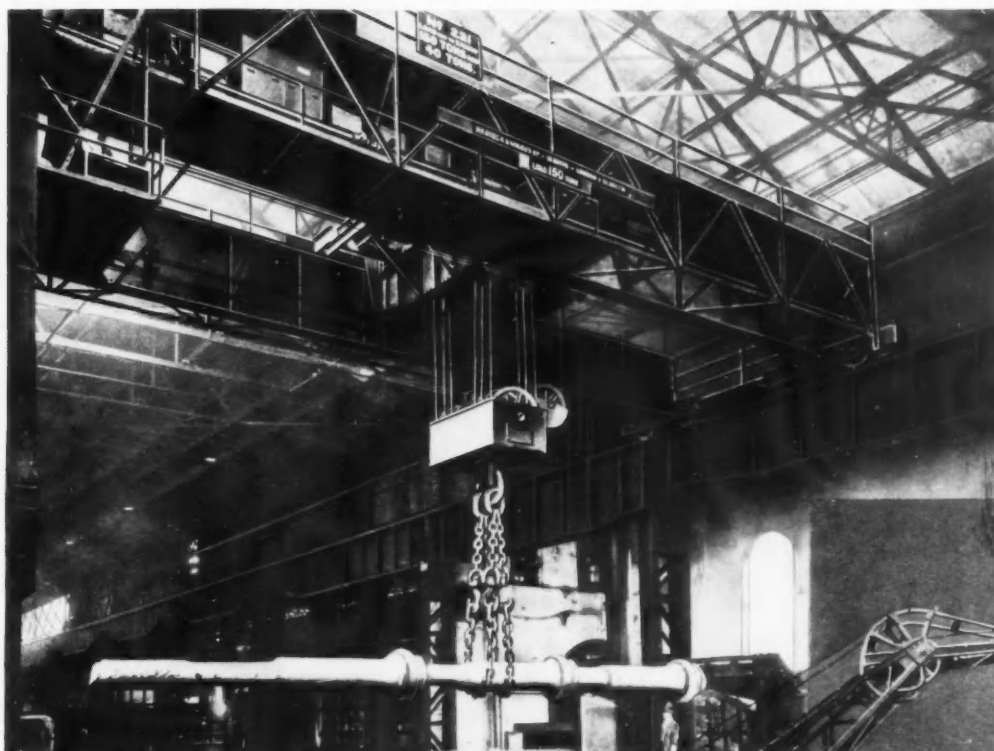
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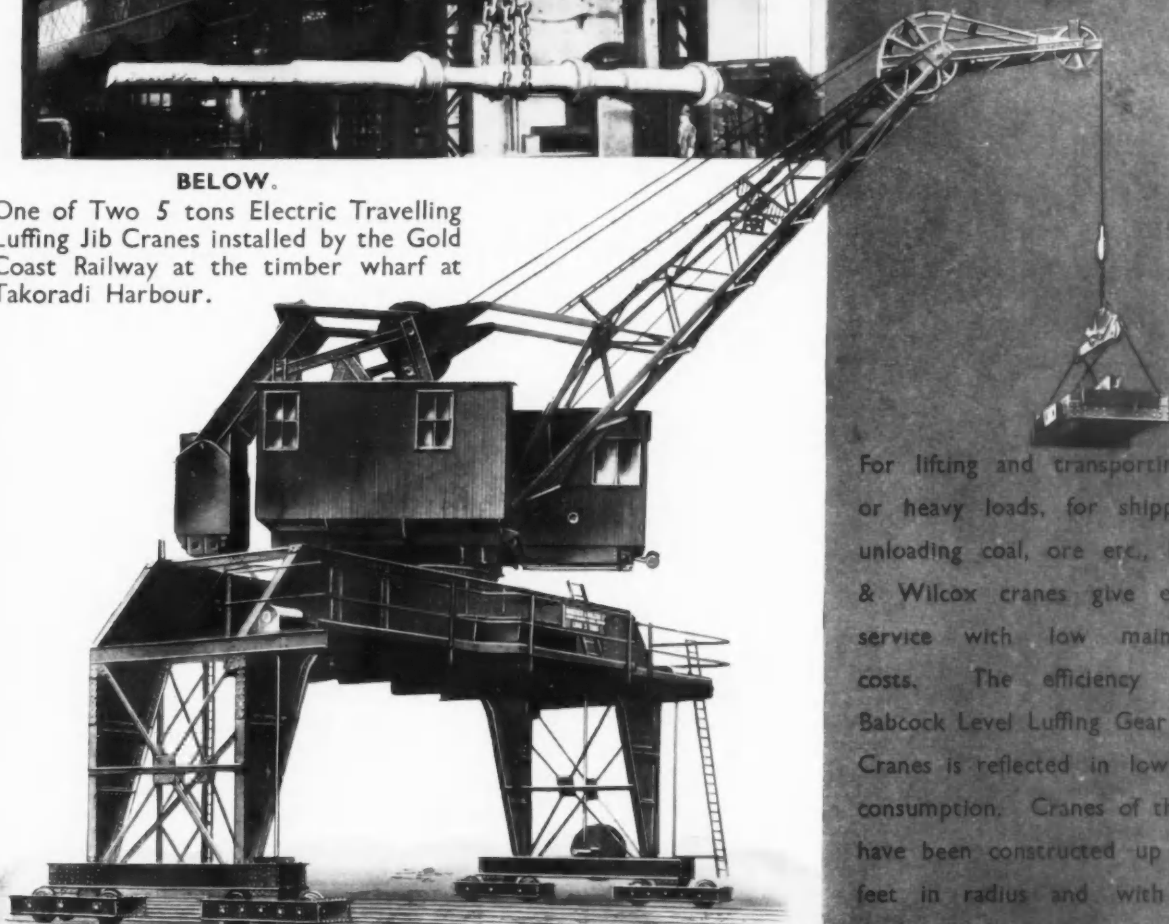


LEFT.

150 tons Electric Overhead Travelling Crane with 40 tons Auxiliary Hoist at the Vickers Works of the English Steel Corporation Limited Sheffield.

BELOW.

One of Two 5 tons Electric Travelling Luffing Jib Cranes installed by the Gold Coast Railway at the timber wharf at Takoradi Harbour.



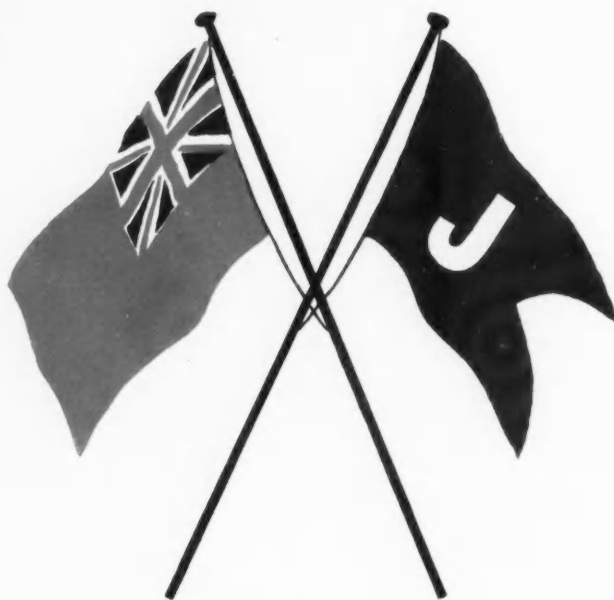
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Contributions which are to be paid for must be clearly marked thus; otherwise they will be considered gratuitous.

If intended for publication in the current month they must come to hand not later than the 20th of the preceding month.

The Editor cannot be responsible for the safety of or return of manuscripts forwarded on approval.

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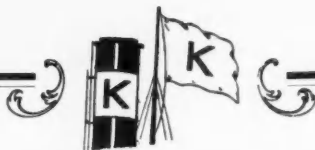
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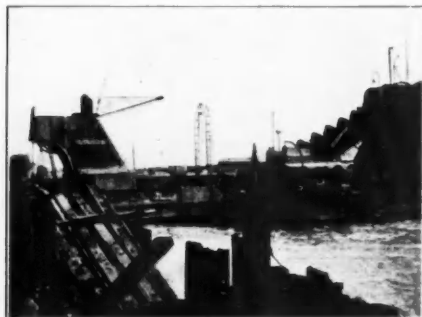
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THE DOCK & HARBOUR AUTHORITY

No. 192. Vol. XVI.

OCTOBER, 1936

Editorial

The Development of Far Eastern Ports.

We have arranged with Professor C. A. Middleton Smith, M.Sc., M.I.Mech.E., (Taikoo Professor of Engineering in the University of Hong Kong), to write a series of articles on the more prominent Far Eastern Ports and their future developments, and the first of these articles—the Port of Hong Kong—will appear in our December issue.

Professor C. A. Middleton Smith has had a long experience in the Far East, and we feel sure his articles will be of interest to our readers as so little has been published in the columns of this journal concerning the development of Far Eastern Ports. An introductory article giving a general outline of the Far Eastern Ports appears in this issue.

Channev Train Ferry Dock at Dover.

At 10.0 p.m. on Wednesday, October 14th, the first passenger Train Ferry Service to the Continent will leave Victoria Station. By this service, passengers will be able to entrain at Victoria, and, if they so desire, sleep their way to Paris without change of train or compartment, arriving in Paris at 8.55 a.m. The corresponding service from Paris (Nord) leaves at 9.50 p.m. (commencing Oct. 15th), and arrives at Victoria at 8.55 a.m. These services will run every night in each direction.

QUAYSIDE CONDITIONS.—As the waters of France and England on either side of the Channel have a daily rise and fall of as much as 25 feet, an inclined slip, such as is used for the reception of many road vehicle ferries, was out of the question in this case owing to the necessity of having a gradient suitable for railway operation. The alternative of locks which would enable the vessels to link up with the shores on level terms at any state of the tide was therefore adopted.

Locks were already in existence at Dunkerque, and comparatively little adaption was required, but at Dover the engineers had to build a completely new Ferry Dock or Lock, to accommodate the Ferry Boats.

This has been an arduous task, owing to the number of natural difficulties experienced. Most of the work has had to be done under the water by divers, and the whole story of the construction of this dock is an engineering epic.

The dock is 405 feet long and 72 feet wide, and is constructed partly of pre-cast concrete blocks and partly of mass concrete deposited between a double row of steel sheet piling. Two gates of the "Box" type, which work on horizontal keels are provided. These gates do not open in the usual manner of dock gates, but are lowered inwards to the bottom of the dock and raised again as required.

There is also an electrically operated articulated lifting bridge, 70 feet in length, and of sufficient width to accommodate two railway tracks which will register with corresponding tracks on the train ferry deck.

Electrically operated pumps enable a train ferry to be berthed at the requisite level within half-an-hour under the most unfavourable conditions.

The area of the dock is about 30,000 square feet.

It is estimated that the cost of the whole scheme, including three Ferry Steamers, the Dock works at Dover and Dunkerque, special rolling stock, etc., will be about a million pounds.

An article describing the construction of this Channel Train Ferry Dock will appear in our next issue.

Southampton Docks.

A record amount of shipping entered the docks in August last, the total of 2,238,500 gross tons easily surpassing the previous best monthly aggregate. Present indications are that the year 1936 will witness the establishment of a new record for the volume of shipping traffic dealt with at Southampton Docks.

Development of the area reserved for industrial purposes on the new Docks Extension Estate at Southampton continues steadily and a site of about 2½ acres of the reclaimed land has recently been leased to a prominent firm of timber merchants. It is intended to utilise the site for the erection of a sawmill, adjacent to which will be covered and open storage accommodation for timber. Direct rail and road access to the buildings is to be provided.

The task of linking up the new Docks Estate with the town through the provision of adequate vehicular roads from the Estate to the main arteries of the town is now approaching completion and the termination of this work will mark a further step towards the full development of the new Extension.

The Institute of Transport.

Sir Alfred Read, Chairman and Managing Director, Coast Lines, Ltd., etc., will be inducted as President of the Institute of Transport and will deliver his presidential address at the first ordinary meeting of the Institute for the session 1936-37, which will take place at the Institution of Electrical Engineers on Monday, October 12th, 1936, commencing at 5.30 p.m.

At the meeting in the same building on Tuesday, October 20th, at 5.30 for 6 p.m., Mr. A. E. Kirkus, O.B.E., will deliver a lecture on "Road transport statistics." The chair will be taken by Sir Cyril Hurcomb, K.B.E., C.B., the Immediate Past President of the Institute.

Improvements at the Port of Terneuzen, Holland.

Since the impetus given to the Dutch ports by the strikes in Belgium, the Port of Terneuzen has been much improved. Although the original cause has now disappeared, the new construction work is proceeding. In the south of the existing canal port, three new small ports are being built, the cost of which is being borne by the Province of Zeeland and the Municipality of Terneuzen. The equipment is obviously destined for Atlantic traffic, which Terneuzen does not at present register, but the promoters of the enlargement work are evidently optimistic about the future of this Dutch port.

Galway Port Development.

Galway Harbour Commissioners have received from the Dept. of Industry and Commerce, a letter regarding their application for a loan of £200,000 under the Trade Loans (Guarantee) Acts, which stated that the Minister desired to have the views of an independent engineering expert on the development of the scheme.

It was decided to call a Committee Meeting, and to have the Secretary of the County Council and the County Surveyor present to draft a report to be forwarded to the Department with the report of the Consulting Engineers.

In reply to complaints about landing facilities at Galway Harbour, made by the Irish County Associations, South Boston, Mr. T. J. W. Kenny has stated that, owing to the merger between the Cunard and White Star, and Hamburg-Amerika and North German Lloyd Lines, they had fewer ships at Galway this year, but they had landed more tourists and other passengers than in any single year since the port was re-opened in 1927. From the opening of the holiday period on May 3rd until 25th July, they had handled 3,124 passengers.

Regarding the development of the docks, it was stated at a meeting of the Board that, although they had already got the sanction of the Minister to borrow up to £200,000, his guarantee under the Trade Loans Guarantee Act was held up because not more than £100,000 can be guaranteed in any single year. This was now nearly exhausted.

The Commissioners believe they will be able to get over this difficulty, and when other preliminaries are completed they expect to be able to begin the work within a few months.

Irish Harbour Matters

Limerick Harbour Revenue Declines.

THE audited accounts for the year ended 31st December, 1935, submitted by Mr. Wm. McNeill, Secretary to the Limerick Harbour Board, show total imports at 285,551 tons, a decrease of 56,551 tons, compared with 1934; while exports show an increase of 934 tons and 6,044 head of cattle. The revenue from all sources amounted to £22,080 2s. 6d., a decrease of £5,139 14s. 3d., as compared with 1934. The fall in imports, said Mr. McNeill to the Board, was due to the National policy of the Government, and reacted principally on cereals. In 1934 exports of cattle from Limerick were 4,200 head, and in 1935 they totalled 10,244 head, due to shipments to the Continent.

Belfast Port Figures.

Returns published by the Belfast Harbour Board show that the traffic of the port is expanding. The tonnage of vessels which arrived from 1st January to 29th August last was 2,945,060, against 2,738,104 in the corresponding period of 1935. The increase in coastwise and cross-Channel traffic was 93,441 tons; in foreign, 96,888 tons; and in non-trading, 17,127 tons.

The tender of the Clyde Crane and Engineering Co., Ltd., for the erection of two 5-ton electric grab cranes at Queen's Quay was accepted.

Over £100,000 has been paid in recent years by the Belfast Harbour Board on new electric crane equipment for the port. In addition to the three electric transporter cranes at the Liverpool boat shed on Donegall Quay, the crane facilities of the harbour have been extended by two other transporter cranes of the latest type. Negotiations for an extra 7-ton crane have been completed, and when this is operating, the Liverpool service will have six transporter cranes ranging from five to twelve tons.

A 30-ton electric crane has replaced the old 25-ton steam crane at Albert Quay. Three 5-ton electric transporter cranes have been installed for the ships of the Burns-Laird Line, and in connection with the Heysham boats, four treble transporter cranes are being erected.

Two Million Oil Refinery for Dublin.

Dublin is to have an oil refinery at the Alexandra Wharf extension. This information was conveyed to the Dublin Port and Docks Board at their meeting on 10th September, by the Chairman, Mr. C. M. O'Kelly.

Hull and the East Coast

Annual Meeting of Scarborough Harbour Commissioners.

The report presented at the annual meeting of the Scarborough Harbour Commissioners showed that the total receipts for the past financial year were £7,757 compared with £7,795 in the previous twelve months and £6,848 in the year 1933-34. The net result was a deficit of £370. This might seem surprising but it must be borne in mind that the expenditure for the year included the final payment of the costs in recent litigation amounting to £2,563 and solicitors' costs of £173 in connection with the promotion of the Scarborough Corporation Act 1935. Apart from these two items the expenditure was normal. In order that the transfer of the Harbour property to the Corporation might be properly recorded a statement had been drawn up showing clearly what assets the Commissioners possessed. At the same time the opportunity had been taken to wipe out the adverse balance on revenue account. As there had been no time to value the plant, material, appurtenances, etc., at the Harbour an estimated figure of £1,000 had been placed upon them. The balance of assets over liabilities was £2,632. The report also stated that it was unfortunate that the revenue from fishing dues showed a further decline and that if it were not for the increasing popularity of the piers as a centre of amusement and pleasure the revenue from the Harbour would be seriously diminished. The Committee were doing everything in their power to create more interest in the fishing industry and had recently launched an advertising scheme to encourage fishing vessel owners and fish buyers to come to the port.

The Chairman (Capt. W. Aiston), in moving the adoption of the report, remarked that the decline in the fishing industry was much to be regretted and that the trawler fleet seemed to get smaller every year. Fortunately there had been added two or three motor fishing boats. The herring fishery continued in an unsatisfactory state, but he hoped that there might still be an improvement before the season ended. The

"On the 24th June last," said the Chairman, "you appointed a special committee with plenary powers to consider an application for a site for an oil refinery. The Committee consisted of the Chairman, Vice-Chairman, Lord Mayor, Mr. Moran, Mr. Moore, Mr. O'Connor, Mr. Laurie, and Major Hollwey. We have had many meetings with the Company's solicitor and representatives, and on the 20th July we reached a provisional agreement with the Directors, Lord Inverforth and Mr. Burgess. During our discussions Lord Inverforth said: 'I do not want to leave the impression that we are too hard; but on the other hand, I do not want to feel that you have driven too hard a bargain.' In other words, he wanted a fair deal, and we are pleased to be in a position to tell you that our negotiations with the Irish National Refineries, Ltd., have been concluded satisfactorily, and we have been successful in bringing the oil refinery to Dublin.

"This is the largest enterprise that has come to our city in our time—a company of over two millions capital, with far-reaching ramifications. They are taking from us some seventy acres of land, of which we have to reclaim seventeen acres, and build two special jetties. This will entail a very large expenditure by the Board, but we feel sure that the Board will agree with us that this expenditure is amply justified, and that our new tenants will prove a great asset to our port, to our city and to our country, and will give much employment.

"We think a word of praise is due to the older members of the Board for their foresight in the reclamation of this land, which makes it possible for us to bring this industry to Dublin.

"We feel that we have achieved much, and would now like to take the opportunity of thanking the Committee, the Board, and the officials, for the way they have honoured the confidence placed in them, as it was necessary to carry out our negotiations in a confidential manner; and may I add a word of praise to our law agent and senior officials, who gave the Company's technical representatives that confidence so necessary in carrying out such an undertaking."

Moving a vote of thanks to the Committee, Mr. David Barry, O.B.E., said that the additional dues and employment which would be afforded by this factory would not be the only gain to Dublin; but if the factory had been established elsewhere, there would have been a substantial decrease in the dues which the Board derived from the importation of petrol and oil.

Mr. J. McGrath, in seconding the vote of thanks, said that that day was a red letter one for Dublin. The port recently had been put on the map for international passenger lines, and now it was being put on the map as an international bunkering port, and liners would come to Dublin to refuel.

The vote of thanks was passed unanimously.

piers and harbour generally were in very good condition and they had spent £900 less on repairs and renewals than in the previous year. The Commissioners had obtained a dredger in May for six or seven weeks and it had done very good work, though owing to bad weather they did not get as much done as expected. Some of the Commissioners, the Chairman added, would like the amusements and stalls on the Harbour side and piers done away with. To show how disastrous such a policy would be, the legitimate trade of the Harbour last year brought in £3,700 and the amusement rents £3,800.

Councillor Catchpole, seconding, said that the Works Committee had done a great work in the improvement of the Harbour, but there was still more to do.

It was agreed that the election of Chairman be deferred to the first meeting of the Piers and Harbour Committee, Capt. Aiston continuing in office in the meantime. The appointment of committees was also referred to the same meeting. The resignation, owing to extreme lameness, of Capt. Cass-Smith was received and a letter of appreciation of his services was ordered to be sent to him. Capt. Cass-Smith has been a life commissioner since 1926 and was formerly for many years harbour master.

Protection Works for River Humber.

In order to prevent further erosion of the Lincolnshire bank of the River Humber extensive protection works have been commenced in the vicinity of South Ferriby. The method consists of placing brushwood mattresses on the river bed, weighting down with stone and relying on the natural silting of the river to consolidate this barrier. The plan is new to this country, the only previous experiment being that now tried in the Wash. The work is under the supervision of Professor Neimanns, a Dutch engineer, who was responsible for similar work undertaken by the Dutch Government in the Zuyder Zee. In recent years thousands of acres of land have been eroded and a main road is now in jeopardy. The work will cost nearly £40,000 and will take twelve months to complete.

The Minor Ports of the Union of South Africa and of South-West Africa

*Brief Descriptions, and Trade and Shipping Statistics of the following Harbours :
Walvis Bay, Luderitz, Port Nolloth, Simonstown*

By ARTHUR MARKOWITZ

*With grateful thanks for the assistance given in the compilation of this article by the Technical, Publicity, and Shipping
Staffs of the South African Railways and Harbours Administration*



Photo]

Luderitz Harbour.

[South African Railways and Harbours

Walvis Bay

History of the Port.

WALVIS BAY, with a narrow strip of land 40 miles in length and 27 miles in breadth, was taken possession of by the British in 1844, and formally annexed to the Cape Colony in August 1879. For many years, however, it remained a territory of insignificant importance owing to the fact that the surrounding country was owned by Germany and the traffic which would naturally have gone through Walvis Bay was diverted to the German port of Swakopmund, where somewhat primitive facilities existed for the landing and shipping of cargo.

When Messrs. F. Robb and G. T. Nicholson, the Union Government's harbour experts, examined the port and its environs in 1912 for the purpose of reporting to the Government on its working and requirements, the population of Walvis Bay consisted of some 24 Europeans and 1,000 Hottentots. A small export trade was carried on in dried fish and "butter" pits—the edible seeds of the Narra fruit which grows in the territory—but the total trade of the port during 1911, for instance, consisted only of 431 tons landed and 177 tons shipped. The revenue from April to December, 1911, was £85 14s. 3d., derived from wharfage and handling charges on cargo, but the expenditure during the same period, in wages and materials amounted to £1,492 1s. 7d.

It was apparent that unless Walvis Bay could become the port of entry for the northern part of German South-West Africa, there was little hope for its progress and development. After the Great War, however, the position changed radically. South-West Africa was captured by South African forces and has ever since then been administered by the Union Government under a mandate. These events led to the closing of Swakopmund as a port, and the transferring of all shipping activities to Walvis Bay, where a modern harbour has been established.

Description of the Harbour.

Walvis Bay Harbour, the geographical location of which is Lat. 29° 57' S., Long. 14° 30' E., lies eastward of the sand spit which forms the bay. This sand spit is about 5 miles in length and from $\frac{1}{2}$ to 1 mile in width. It terminates at its northern extremity in Pelican Point.

The head or southern portion of the bay is comparatively shallow, the 5 fathom contour lying about three miles from the shore. On the eastern side, where the harbour works are situated, the deep water approaches somewhat nearer the coast. Nevertheless, in order to reach the 5 fathom line, a channel of about 2 miles in length and 440 feet in width had to be dredged in order to give access to the wharf.

Shortly after the War the Union Government decided on the remodelling of the whole harbour at a cost of approximately half a million pounds. The change-over from the old lay-out of the harbour to the new was accomplished during

1927 with eminently satisfactory results as far as the working of the harbour was concerned. The new wharves were officially opened on the 3rd August, 1927.

Wharfage and Port Facilities.

At present, Walvis Bay possesses two jetties and one concrete wharf, the former being used solely for the mooring of small craft. No. 1 jetty is 480 feet long with a depth alongside of $4\frac{1}{2}$ feet at L.W.O.S.T. No. 2 jetty is 675 feet long, the depth of water alongside it being 9 $\frac{1}{2}$ feet.

The wharf, which is constructed on concrete piles and beams with an asphalt deck, is 1,500 feet long with a depth alongside of 33 feet at L.W.O.S.T. It is equipped with five 4-ton electric cranes, and with one 7-ton electric crane which has a working radius of 47 feet.

Shed and storage accommodation has been provided near the concrete wharf. The total floor space of the covered sheds is 60,000 square feet, there are also 58,000 square feet of uncovered platforms, and unlimited storage for rough goods. Uncovered raised platforms for ore occupy 79,000 square feet.

A patent slip has been built north-eastward of the wharf. It provides accommodation for two vessels at a time. The slipway has a haulage capacity of 1,000 tons dead-weight. Its draught at H.W.O.S.T. is 13 feet at the stem and 23 feet at the stern.

The port is equipped with four lighters with an aggregate capacity of 320 tons, and with a powerful tug, fitted with salvage and fire appliances.

The provision of bulk petrol and paraffin storage consists of two tanks of an aggregate capacity of 1,681,120 gallons for the storage of petrol, and one paraffin tank of 84,700 gallons capacity. These three tanks, as well as one for the storage of oil fuel, with a capacity of 233,536 gallons, are privately owned.

Fresh Water Supply.

One of the greatest drawbacks of Walvis Bay as a harbour was, in previous years, the absence of an adequate supply of fresh water. This was overcome in 1925 when provision for a fresh water supply was completed. The work involved the laying of a railway track of 20 miles; 19 $\frac{1}{2}$ miles of 9-inch cast-iron pipe main; the erection of an intake pond and a pumping plant; the construction of an intake concrete reservoir of 100,000 gallons capacity; two break-pressure concrete reservoirs and a telephone line between Walvis Bay and Rooibank, the source of the supply.

Railway Communication.

The wharf is covered by a net-work of rails which lead to the Walvis Bay station. The port is connected, through Swakopmund and Windhoek, to the South African railway system, and also to Tsumeb and Grootfontein, in the north-eastern part of South-West Africa.

*Minor Ports of South Africa—continued***Walvis Bay Trade.**

Details in respect of the commodities exported from Walvis Bay during 1934-35, as compared with 1933-34, are given in the subjoined table:—

WALVIS BAY TRADE.

Commodity (Harbour tons at 2,000 lb.)	1934-35	1933-34
General Cargo	3,776	3,116
Timber	—	3
Produce	3,475	2,925
Wool	1,032	528
Skins and Hides	715	932
Citrus Fruit	1	10
Coal Bunkered	95	—
Ores and Minerals	2,841	768
Totals	11,935	8,282

Details of the cargo landed at Walvis Bay during 1934-35, as compared with 1933-34, were as follows:—

Nature of Cargo (Harbour tons)	1934-35	1933-34
General Cargo	23,039	21,714
Timber	2,269	1,208
Produce	—	312
Railway Materials	—	14
Oil Fuel	3,478	2,840
Totals	28,786	26,088

PASSENGERS.

	1934-35	1933-34
Landed	881	958
Embarked	1,304	1,145
Totals	2,185	2,103

LIVE STOCK

	1934-35	1933-34
Landed (no.)	58	—
Shipped (no.)	18	7
Totals	76	7

SUMMARY OF CARGO HANDLED.

Harbour tons.	1934-35	1933-34
Cargo Landed	28,786	26,088
Cargo Shipped	11,935	8,282
Cargo Transhipped	3,777	6,681
Totals	44,498	41,051

Water Shipped (Gallons)	1,421,840	1,907,639
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Shipping.

In all, 125 merchant ships called at Walvis Bay during 1934-35, representing a decrease of nine as compared with the previous year. The gross registered tonnage of the vessels aggregated 627,710, an increase of 56,199 tons. The following are the details of shipping:—

	1934-35	1933-34
Steamers (Coal fuelled)	36	47
Steamers (Oil fuelled)	82	82
Motor Vessels	—	1
Small Craft (12 to 50 tons)	7	4
Totals	125	134

REGISTERED TONNAGE.

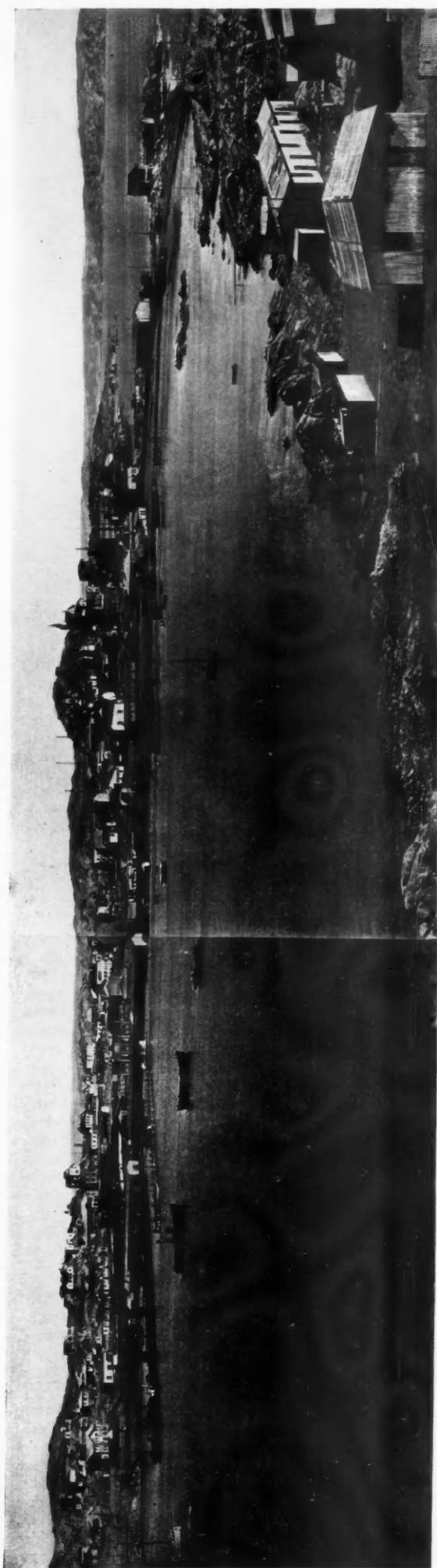
	1934-35	1933-34
Net	375,953	340,272
Gross	627,710	571,511

With the cessation of copper mining operations in the Mandated Territory, the trade of the port has been reduced to a shadow of its former self.

Luderitz Harbour

Luderitz first became of importance to shipping in 1908, when diamonds were discovered in the adjacent districts, and as a result the settlement prospered and was developed as a small seaport. The trade of Luderitz has suffered considerably of late owing to the temporary closing down of the local diamond fields, but will naturally improve as soon as these are put into operation again.

The port, the geographical location of which is Lat. 26 39' S., Long. 15 09' E., is situated 485 miles northerly by sea from Capetown, and possesses a well-sheltered harbour, with good anchorage at all times of the year. Conveyance of cargo to and from the shore is effected by the lighterage system



[South African Railways and Harbours

General View of the Bay, Luderitz Harbour.

Minor Ports of South Africa—continued

Harbour works consist of two piers. The Eastern wooden pier is 564 feet long with a depth of $10\frac{1}{2}$ feet at its head. The Western reinforced concrete pier is 492 feet in length with a depth of $10\frac{1}{2}$ feet at its head. On it there are two 4-ton electric cranes and one 7-ton steam crane is also available.

In addition to the usual King's warehouse, there is a shed for the sorting and storage of cargo, the floor space of which is 10,400 square feet. There is also an extensive area for the storage of rough goods in the open. The shed and storage facilities are provided with railway sidings which connect with the main railway system.

A slipway for the execution of small-scale repairs has been constructed. It has a dead-weight capacity of 500 tons.

Port Nolloth is of some importance as the export centre for canned crayfish. The harbour works, which have been constructed and worked by private enterprise, consist of a pier equipped with two 5-ton cranes. The pier is 200 feet long and 180 feet wide, with a depth alongside of 10 feet. Small vessels sometimes tie up at the pier to load or discharge cargo, especially when the weather is fine, but vessels of deeper draught lie in the anchorage, where the cargo is worked by means of steam tugs and lighters, of which over a dozen are attached to the port.

About half-a-mile southward of the pier is a small jetty, 150 feet long and 18 feet wide, at which small vessels up to 25 tons can lie.



Photo]

Simonstown Harbour.

[South African Railways and Harbours

Lüderitz is the ocean terminus of a railway to Keetmanshoop, on the line connecting Swakopmund, via Windhoek, with the railway system of the Union of South Africa.

The population of the port consisted in 1932 of 2,110 people, of whom about half were Europeans. Crayfish canning has been established at the port, and there are three factories employed in this industry.

LÜDERITZ TRADE AND SHIPPING.

Cargo Landed (Harbour tons at 2,000 lb.)	1934-35	1933-34
General	7,757	7,509
Grain	1	—
Timber	408	72
Produce	—	18
Oil Fuel	1,208	580
Totals	9,374	8,179

The total of cargo landed shows an increase of 1,195 tons, reflected chiefly in the importation of oil fuel, timber and general merchandise.

The tonnage shipped represented a decrease of 1,071 tons, due almost entirely to a heavy falling off in the export of preserved crayfish to France, the result of the imposition of quota restrictions by that country.

Summary of Cargo Handled (Harbour tons)	1934-35	1933-34
Landed	9,374	8,179
Shipped	4,172	5,243
Totals	13,546	13,422

Shipping.

During 1934-35, a total of 76 vessels called at Lüderitz (as compared with 75 in 1933-34), with a gross registered tonnage of 394,982 and 372,043 respectively.

The number of passengers landed at Lüderitz in 1934-35 was 598, as compared with 459 during the previous year, and 482 embarked as against 505 in 1933-34.

Port Nolloth

Port Nolloth is situated 300 miles north of Capetown in a slight indentation of the coast. The port is formed by a reef of rocks. Between the reef and the mainland is Robbe islet, and the inner anchorage is between the islet and the town. Access is gained to it through a buoyed channel. The inner anchorage, the location of which is Lat. 29 15' S., Long. 16 52' E., is well sheltered from heavy seas, and provides a great measure of safety.

The port is equipped with a patent slipway, which has accommodated on one occasion a vessel 110 feet long, 18 feet 5 inches wide and 8 feet 5 inches deep, with a gross tonnage of 205.

A privately-owned light railway runs from the pier to Concordia and to O'okiep, a distance of about 110 miles, but the port is not linked up with the general system of the South African railways.

PORT NOLLOTH TRADE AND SHIPPING.

Cargo Landed (Harbour tons)	1934-35	1933-34
General	8,258	7,965
Coal	226	485
Totals	8,484	8,450

Cargo Shipped (Harbour tons)	1934-35	1933-34
General	2,243	1,663
Ores	26	117
Fish	228	908
Totals	2,497	2,688

Summary of Cargo (Harbour tons)	1934-35	1933-34
Landed	8,484	8,450
Shipped	2,497	2,688
Totals	10,981	11,138

Coal is being imported into Port Nolloth as fuel for the canning factories. The decrease in the cargo shipped is accounted for, as in the case of Lüderitz, by the restrictions imposed in regard to the quantities of preserved crayfish allowed to be exported to France.

The number of passengers landed at Port Nolloth during 1934-35 was 43, as compared with 47 during the previous year, whilst 73 embarked as against 72 in 1933-34.

SHIPPING.

	1934-35	1933-34
Steamers	28	27
Small Craft	25	31
Totals	53	58

REGISTERED TONNAGE.

	1934-35	1933-34
Net	4,102	4,170
Gross	10,015	10,275

*Minor Ports of South Africa—continued**Simonstown*

The Port of Simonstown is situated in Simons Bay, about 11 miles northward of Cape Point and near the north-western corner of False Bay. It was discovered by, and named after, Simon van der Stel, a Dutch Governor of the Cape, who lived in the second half of the seventeenth century.

Simonstown was first occupied by the Dutch as a naval and military depot in 1741. The town rapidly grew into an important commercial centre, and the port was developed as a harbour of refuge and supply. It was first occupied by the British in 1795, and in 1814 the port was adopted as the African headquarters of the Royal Navy.

Extensive harbour works, including a large graving dock, were commenced in 1900 and successfully concluded about ten years later. These are the property of the Admiralty. To-day Simonstown is still the base of the African Naval fleet, but the graving dock is available, on application to the Captain-in-charge, for urgent repairs to merchant ships, provided it is not in occupation at the time by Admiralty vessels.

The harbour at Simonstown is formed by the East Breakwater and the West Pier, and has a water area of 28½ acres. The entrance to the basin (Lat. 34° 12' S., Long. 18° 26' E.) is about 290 feet wide and from 29 to 42 feet deep.

The graving dock, known as the Selborne Dock, sheds and workshops are situated at the southern end of the basin. The graving dock is 780 feet long, 94 feet wide, and has a depth over sill of 34 feet 5 inches at H.W.O.N.T. In 1920, a small concrete jetty to the west of the Admiralty Dockyard was provided by the South African Railways and Harbours Administration for the use of the local fishing fleet.

SIMONSTOWN TRADE AND SHIPPING.

Cargo Landed (Harbour tons)		1934-35	1933-34
General	...	2,001	2,873
Coal	...	2,197	2,480
Coke	...	301	101
Oil Fuel	...	19,194	—
Totals		23,693	5,454

Cargo Shipped (Harbour tons)		1934-35	1933-34
General Cargo, Total	...	372	758

Summary (Harbour tons)		1934-35	1933-34
Landed	...	23,693	5,454
Shipped	...	372	758
Totals		24,065	6,212

Shipping (other than Men-of-War)		1934-35	1933-34
Steamers and Small Craft	...	16	27

Registered Tonnage		1934-35	1933-34
Net	...	41,112	56,816
Gross	...	68,722	94,545

No passengers are landed or embarked at Simonstown. The cargo dealt with consists exclusively of Naval stores.

In our issue next month we shall deal with Mossel Bay, Port Alfred, Port St. Johns, Port Shepstone and Krysna.

The Port of Amsterdam

The position of the Port of Amsterdam in regard to number of vessels and tonnage and to goods traffic arrived and sailed, as compared with the corresponding figures of last year, is as follows:—

SEAGOING VESSELS AND TONNAGE.

		ARRIVALS				SAILINGS			
		No.	Per Cent.	N.R.T.	Per Cent.	No.	Per Cent.	N.R.T.	Per Cent.
Aug. 1935	...	245		337,466		263		382,596	
" 1936	...	272		373,300		278		388,840	
		+27	+11.02	+35,834	+10.62	+15	+5.7	+6,244	+1.61
July 1936	...	252		347,207		259		374,069	
Aug. 1936	...	272		373,300		278		388,840	
		+20	+7.94	+26,093	+7.52	+19	+7.34	+14,771	+3.95
Jan.-Aug. 1935	...	1,917		2,813,411		1,942		2,878,081	
1936	...	1,990		2,828,987		1,993		2,829,964	
		+73	+3.81	+15,576	+0.51	+51	+2.63	+48,117	+1.62

SEAGOING GOODS TRAFFIC.
(In Tons of 1000 Kilos*).

		1 Import	2 Transit incl. in col. 1	3 Export	4 Transit incl. in col. 3	5 Total col. 1 & 3
July 1935	...	226,175	52,183	128,244	65,370	354,419
" 1936	...	299,855	72,489	157,150	77,253	457,005
		+73,680	+20,306	+28,914	+11,883	+102,586
		+32.58%	+38.91%	+22.55%	+18.18%	+28.95%
June 1936	...	265,504	54,334	114,708	61,197	380,212
July 1936	...	299,855	72,489	157,150	77,253	377,108
		+34,351	+18,155	+42,442	+16,056	+3,104
		+12.94%	+33.41%	+37.00%	+26.24%	+0.82%
Jan.-July 1935	...	1,848,873	410,395	966,357	429,407	2,815,230
" 1936	...	1,800,169	426,958	1,013,908	462,547	2,814,077
		-48,704	+16,623	+47,651	+33,140	-1,153
		-2.63%	+4.05%	+4.93%	+7.72%	-0.04%

* These figures have been taken from the monthly statistics of the Central Bureau, The Hague, Holland.

Classified according to flag the number of vessels which entered the Port of Amsterdam during August, 1936, was:—Netherlands 130, Great Britain 48, German 17, Swedish 18, Norwegian 20, Danish 9, French 4, Greek 6, Lettish 8, Finnish 4, Estonian 2, Belgian 2, Russian 2, Panamanian 2.

Vessels laid up at Amsterdam: 1st August, 1936—5 vessels, measuring 18,609 tons gross; 1st September, 1935—15 vessels, measuring 79,353 tons gross; 1st September, 1936—3 vessels, measuring 14,461 tons gross.

*Port of London Notes**London Shipping.*

During the first seven months of the year, 35,733,192 net register tons of shipping used the Port of London. This is 1,706,078 tons more than for the first seven months of 1935 and represents an increase of five per cent.

* * * *

During the week ended 4th September, 1,080 vessels, representing 1,113,931 net register tons, used the Port of London. Of these 600 vessels (896,213 net register tons) were to and from Empire and Foreign ports and 480 vessels (217,718 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 11th September, 1,287 vessels, representing 1,193,923 net register tons, used the Port of London. Of these 528 vessels (859,258 net register tons) were to and from Empire and Foreign ports and 759 vessels (334,665 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 18th September, 1,202 vessels, representing 1,176,881 net register tons, used the Port of London. Of these 548 vessels (950,063 net register tons) were to and from Empire and Foreign ports and 654 vessels (226,818 net register tons) were engaged in coastwise traffic.

Weser Inland Shipping during July, 1936.

Water conditions on the Weser during July, 1936, continued to be unsatisfactory, not even the average of the previous month being reached and thus necessitating a further reduction in the cargoes carried by barges.

During the first seven months 1,210,200 tons passed through the Bremen Weser Lock downstream, that is 350,000 tons or 40 per cent. more than during the same period of the previous year. This increase is caused by the increased amount of building materials carried (300,000 tons more). However, more piece-goods and grain were also carried. Potash and salt decreased by 40,000 tons and coals by 29,000 tons. Downstream traffic at 211,200 tons was 81,600 tons or 28 per cent. less, due to considerable decreases in some of the principal goods carried, particularly mineral oil, grain, flour, foreign coals and piece-goods. Only timber was an exception, having now exceeded the amount carried in the previous year through the greater amount carried in July, 1936.

For dock and harbour construction

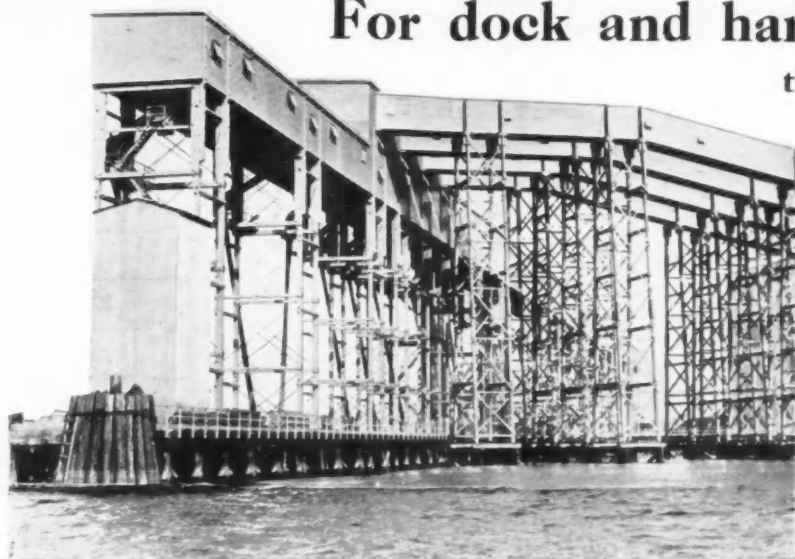
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Port of Southampton Topics

Docks Statistics for August.

SOUTHAMPTON DOCKS statistics for August indicate that the port is continuing to reap the benefit of the better economic outlook, for under the 12 headings into which the traffic is divided only two decreases are recorded, compared with the figures for August last year. These decreases were, however, of a minor character.

The number of ships inward amounted to 289, as compared with 333 in August, 1935, and outward the total was 378, compared with 241. The arrivals were, therefore, 56 in excess of the figure for August last year and the departures 37 more.

The increase in the number of ships was reflected in the gross and net tonnage returns. Gross tonnage inward advanced by 243,605 tons, the figure mounting from 2,094,918 tons to 2,238,523 tons. Outward the total advanced by 20,246 tons, from 2,109,506 tons to 2,129,752 tons.

The net tonnage figures were:—Inward 1,187,592 tons, compared with 1,136,517 tons; outward 1,126,359 tons, against 1,139,750 tons. The outward decline of 13,391 tons was more than counter-balanced by the inward increase of 51,075 tons.

Once again the cargo figures were of a most satisfactory character. Imports amounted to 66,576 tons, which was 18,677 tons more than in August, 1935, when the total was 47,899 tons. Exports also showed an increase, for the monthly aggregate was 31,152 tons, compared with 31,094 tons, an advance of 58 tons.

Passenger traffic was also heavier than in August of the previous year, although there was a decline of 2,372 in the number of departures. Passengers arriving numbered 62,272, as against 57,084, an increase of 5,188. Outward the total was 63,728, compared with 66,100.

The inward increase in travel is not surprising, for this year the flow of Americans and Canadians to Europe has been spread over a longer period than usual. This, in part, explains why the outward returns were not so big as they were in August last year.

In the first seven months of this year 37,250 more travellers were carried by the six leading companies engaged in the North Atlantic trade than was the case last year. There is no doubt that the current year is proving the most profitable since pre-depression days. The volume of traffic has increased in both west-bound and east-bound directions, and every one of the leading companies has benefited.

While the increase in the traffic of the North German Lloyd was 22 per cent. and in that of the Canadian Pacific 21 per cent., compared with the corresponding figures for last year, the biggest actual increase in the number of passengers carried is claimed by the Cunard White Star Line. Their increase amounted to 13,350 passengers, or about 18 per cent. This big increase can be very largely attributed to the entry into service of the "Queen Mary," which has sailed consistently full both west-bound and east-bound.

Shipping at Southampton.

There have been several interesting features connected with the port activities during the past month.

In the early part of September the port had the first call of the Union Castle Line's new motor-ship "Dunvegan Castle" (15,007 tons gross). This ship, a sister ship to the "Dunnottar Castle," which has recently completed her maiden voyage, left on her maiden voyage to the Cape on September 18th.

She is the fourth new vessel to enter the Union Castle service this year, and while certain of the company's mail vessels are being re-engined before taking their place in the accelerated service to South Africa, their place in the mail fleet will be taken temporarily by the "Dunvegan Castle" and the "Dunnottar Castle."

The departure of the Orient liner "Orion" for Australia on September 12th was a matter of considerable interest, for she was the first of the Line's ships on the regular mail and passenger service to sail from this port on an Australian voyage. The reason that she did not sail from London, as is usually the case, was that she had been dry-docked at Southampton for repairs and adjustments.

A suggestion that the North German Lloyd liners "Bremen" and "Europa" might come up to the docks at Southampton instead of embarking and disembarking passengers by tender in Cowes Roads on east-bound voyages, received support when it was announced that the "Bremen," homeward bound from the United States, would come to a berth at the docks to disembark passengers on September

11th. The plans were changed the day before, and no official explanation was given for the change. It was accepted generally in shipping circles that the call was of an exploratory character. The North German Lloyd would doubtless bring their ships to dock east-bound at the height of the season if it could be accomplished without upsetting berthing arrangements at Bremerhaven, and it is believed that the "Bremen" was to have experimented in this regard.

New Stabiliser for Ships.

A new stabiliser, comprising two fins, one of which can be projected on either side of the ship, was tested when the Southern Railway Company's cross-Channel steamer "Isle of Sark" made a voyage from Southampton with experts on board on September 17th.

The apparatus does not claim to eliminate entirely the rolling of a ship, but will reduce it to such an extent as to provide comfortable conditions for those on board, except in heavy weather.

The complete stabiliser for a boat of this size weighs about 15 tons and costs between £7,000 and £9,000. The fins, when not required are housed in the hull of the ship, and when needed are forced out for service by a simple hydraulic device. When in the outboard position their movement is normally controlled by a small gyroscope, but hand-control is also provided.

Non-Propelling Barge-Loading Bucket Dredger for the London Midland and Scottish Railway Co.

Messrs. Wm. Simons & Co., Ltd., Renfrew, launched on September 16th, complete with all machinery on board and ready for work the barge loading bucket dredger "Fylde," which they have constructed to the order of the London, Midland & Scottish Railway Company for work at Fleetwood Harbour.

The dredger has been built under the direction of Captain J. W. Harris, R.N.R., the Company's chief marine superintendent.

The vessel is well equipped for dealing with all classes of material, being capable of discharging into barges on either side at the rate of 1000 cubic yards per hour, and of dredging to a depth of 37 feet below water level.

A set of triple expansion surface condensing engines supplied by steam from a multitubular boiler constructed for a working pressure of 180 lbs. per square inch drives the dredging machinery.

The deck machinery includes steam gear for raising and lowering the bucket ladder, steam shoot hoisting gear, hand crane and powerful independent steam bow and stern winches for manoeuvring purposes and for regulating the cut of the dredger while at work.

The vessel, which is electrically lit throughout, is equipped with comfortable cabins for officers and crew, and is built under Lloyd's Survey to their highest class.

The naming ceremony was performed by Mrs. F. B. Halliwell of London.

Discontinued Ferry Services.

Proposals to discontinue Egremont and New Brighton ferry services during the winter months from October to March inclusive, are the principal recommendations submitted to the Wallasey Town Council by the Transport Co-ordination Special Committee, after more than a year's investigations into the possibility of reducing expenditure on the running of the Ferries undertaking. The total annual reduction of expenditure by the economies suggested in the report is £20,000.

The discontinuance of the Egremont and New Brighton service in the winter, during the months of October to March inclusive, it is stated, would result in the following savings:—Masters' and engineers' salaries and wages of crews, £5,400; wages of stagemen, collectors and inspectors, £1,500; coal and coaling charges, £1,500; oil, waste and stores, £230; gas, water and electricity, insurance and sundry expenses, £350; estimated reduction in expenditure per annum, £11,980.

The modification of the Egremont and New Brighton service by the substitution of a two-boat service in April, May and September, and a three-boat service in June, July and August, would effect the following economies:—Masters' and engineers' salaries and wages of crews, £600; coal and coaling charges, £500; oil, water and stores and sundry expenses, £20; estimated reduction in expenditure per annum, £1,120.

Port of London Authority

Twenty-seventh Annual Report for the Year ended 31st March, 1936

Trade of the Port

Shipping Arriving and Departing.

THE total net register tonnage of vessels that arrived and departed with cargoes and in ballast from and to foreign countries and British Possessions and coastwise during the years ended 31st December, 1919-1935, was as follows:—

	Tons		Tons
1919 ...	26,335,191	1928 ...	55,423,681
1920 ...	32,758,604	1929 ...	57,578,355
1921 ...	31,089,783	1930 ...	58,055,598
1922 ...	37,293,139	1931 ...	56,074,556
1923 ...	41,211,928	1932 ...	53,903,886
1924 ...	45,392,649	1933 ...	56,480,004
1925 ...	47,064,975	1934 ...	58,947,642
1926 ...	49,278,173	1935 ...	59,762,150
1927 ...	52,576,755		

Imports and Exports.

The tonnage of imported and exported goods, foreign and coastwise, of the Port of London for the twelve months ended 31st March, 1936 and 1935, respectively, was as follows:—

	1936. Tons	1935. Tons	Percentage Increase or Decrease on 1935.
IMPORTS—			
Foreign ...	17,110,486	16,744,022	+2.2
Coastwise ...	14,993,580	14,391,139	+4.2
Transshipments ...	1,544,557	1,561,760	-1.1
	33,648,623	32,696,921	+2.9
EXPORTS			
Foreign ...	3,377,930	3,023,641	+11.7
Coastwise ...	2,317,715	2,002,457	+15.7
Transshipments ...	1,544,557	1,561,760	-1.1
	7,240,202	6,587,858	+9.9
Total ...	40,888,825	39,284,779	+4.1

Shipping paying River Duties of Tonnage.

The total net register tonnage of vessels (including deck cargo tonnage) which, not being within the exempted classes, was liable to river duties of tonnage, inwards or outwards, during the twelve months ended 31st March, 1936, and 1935, respectively, was as follows:—

	1936. Tons	1935. Tons	Percentage Increase on 1935.
Foreign ...			
Inwards	21,958,398	21,339,258	2.9
Outwards	10,607,285	9,996,393	6.1
	32,565,683	31,335,651	3.9
Coastwise ...			
Inwards	8,553,946	8,198,074	4.3
Outwards	2,875,088	2,788,863	3.1
	11,429,034	10,986,937	4.0
	43,994,717	42,322,588	4.0

Shipping using the Wet Docks.

Of the above tonnage of vessels that paid river duties of tonnage, 58.3 per cent. used the wet docks of the Authority, compared with 58.5 per cent. during the twelve months preceding, as follows:—

	1936. Tons	1935. Tons	Percentage Increase on 1935.
Foreign ...			
Inwards	15,327,395	14,938,909	2.6
Outwards	8,211,420	7,829,525	4.9
	23,538,815	22,768,434	3.4
Coastwise ...			
Inwards	1,213,216	1,136,362	6.8
Outwards	911,994	859,804	6.1
	2,125,210	1,996,166	6.5
	25,664,025	24,764,600	3.6

Shipping using the Dry Docks.

The shipping entering the dry docks of the Authority during the twelve months was 3,104,195 tons gross, compared with 3,133,119 tons in the previous year.

Goods dealt with at the Docks.

During the twelve months ended 31st March, 1936, the Authority landed or received 2,163,239 tons of import goods for warehousing or for immediate delivery, a decrease of 52,629 tons, or 2.4 per cent. on the tonnage dealt with during the previous twelve months.

The stocks of goods at the end of March, 1936, in the warehouses directly controlled by the Authority amounted to 496,432 tons, as compared with 578,695 tons at the corresponding date in 1935, a decrease of 82,263 tons.

The export traffic handled by the Authority on the dock quays during the twelve months amounted to 677,995 tons, being an increase of 62,454 tons on the previous year's figure of 615,501 tons.

Finance

Borrowing Powers Authorised and Exercised.

The balance of borrowing powers unexercised at 31st March, 1936, amounted to £1,462,042, as follows:—

	£
Total amount authorised ...	45,000,000
Borrowed—	
(a) Port Stock issued and outstanding ...	35,175,963
(b) Port Stock purchased and extinguished ...	1,414,496
(c) Port Stock redeemed ...	17,499
(d) Withdrawn from Stock Redemption Funds ...	3,930,000
	40,537,958
Balance of borrowing powers unexercised ...	£1,462,042

Capital Expenditure.

The Capital Expenditure for the year ended 31st March, 1936, amounted to £288,558.

Cancellation of Port Stock.

The powers conferred on the Authority by the Port of London Stock Regulations have been exercised by the purchase and cancellation of £112,937 13s. 10d. 3 per cent. "A" Port Stock, 1929-30, representing investments of moneys standing to the credit of certain Redemption Fund Accounts.

Stock Redemption Funds and Capital Redemption Account.

The amount standing to the credit of the Stock Redemption Funds at 31st March, 1936, was £488,653. The investments held on account of these Funds stand in the books at a value of £110,555, leaving a balance of £298,098 for investment, or to be used in exercise of Borrowing Powers.

Supplementary to the Statutory requirements in regard to Port Stock, Provisional Redemption Funds are in operation for the redemption of certain expenditure for which borrowing powers have not yet been exercised, and the balance of these Funds amounted at 31st March, 1936, to £164,678.

The Capital Redemption Account now stands at £4,029,860, representing an increase of £271,969 during the year.

Working Results.

The following is a summary of the year's working:—

	£
Total Revenue ...	5,668,279
Total Expenditure ...	4,082,354
	Balance of Revenue ... 1,585,925
Less—	
Interest on Port Stock and Temporary Loans, Sinking Fund Charges, etc., less interest, etc., receivable ...	1,579,759
Surplus ...	6,166
Balance brought forward from 31st March, 1935 ...	399,152
Leaving to be carried forward ...	£405,318

General Fund for the Maintenance and Renewal of Premises and Plant, and for Dredging.

The expenditure during the year on account of this Fund was £77,676, and after transferring £150,000 from Net Revenue Account, the balance standing to the credit of this Fund at 31st March, 1936, was £190,594.

General Reserve Fund.

The amount standing to the credit of the General Reserve Fund at the 31st March, 1935, was £1,000,000. The Fund has been augmented during the year by an allocation of £50,000 from Net Revenue.

The Investments held on account of the Reserve Fund stand in the books at a value of £1,000,000, leaving a balance of £50,000 to be invested.

*Port of London Authority—continued***Insurance Fund.**

This Fund now bears the cost of all the Authority's insurance, whether the risk is carried by the Fund or otherwise. The amount standing to its credit at 31st March, 1936, was as follows:—

Amount at 31st March, 1935	£ 601,068
Added since—Income accumulated from Investments	27,664
	628,732
Less—Losses, Re-insurances, etc., during the year	59,928
Amount at 31st March, 1936	£568,804

The investments held on account of the Fund stand in the books at a value of £601,068, which is less than market prices at 31st March, 1936.

Auditor.

The Ministry of Transport re-appointed Lord Plender, G.B.E., of the firm of Deloitte, Plender, Griffiths and Co. to be Auditor of the Accounts of the Authority for the year ended 31st March, 1936, in accordance with the provisions of Section 100 of the Port of London (Consolidation) Act, 1920.

Works and Improvements

Surrey Commercial Docks.—In order to provide additional accommodation for the storage of softwood, three new timber sheds are under construction with a barge canal between, to facilitate the transfer of timber.

The supply and erection of new lock gates and machinery at the Surrey Entrance has been completed and the inner gates of the Greenland Entrance Lock have been taken out and reconditioned.

India and Millwall Docks.—A new swing bridge has been erected over the passage between the Blackwall Basin and the Import Dock, and the roads and railways between the West India and the Millwall Docks are being reconstructed.

Royal Victoria Dock.—Under the scheme for the modernisation of this Dock for which the Authority obtained statutory powers under the Port of London Act, 1935, "M" Jetty on the South side of the Dock has been demolished and a new quay constructed with foundations for a three-storey warehouse. A contract has been placed for the erection of the warehouse. The twin railway tunnels under the Connaught Road Passage have been strengthened, the crown lowered, and a new subway for mains built preparatory to the work of deepening the passage which is now in progress. An order has been placed for the construction of twenty-five 3-ton electric quay cranes, of which ten have been completed.

Royal Albert Dock.—The widening of the North Quay for the greater part of its length has been completed and the deepening of the dock is now in hand.

On the South side, Sheds Nos. 2, 4, 22 and 24 have been reconditioned and the electrification of the quay has been completed.

Seaborne Goods Traffic of the Lower Weser Ports during July, 1936.

The decrease in total turnover of the Lower Weser ports already noticeable in June continued in July, which, at 614,661 tons, was 43,820 tons less than in June. Imports decreased from 244,864 tons in June to 218,234 tons in July, exports during the same period from 413,617 tons to 396,427 tons. Compared with July, 1935, however, exports were still 44,288 tons higher, and thus the total turnover was also 42,937 tons more than in the previous year, although imports did not quite attain the level of 1935 (219,585 tons).

Total seaborne imports through Bremen ports decreased from 226,257 tons in June to 203,057 tons in July, 1936, decreases being chiefly in wheat, barley, rice, maize, fruit and southern fruits, coffee, oil-seeds and mill products, ores, cotton, wool, timber and metal. Larger quantities of fodder, coals, mineral oils and jute were imported.

In spite of the considerable decrease in June and July, 1936, total raw material arrivals, and thus of all materials, etc., were still 4,540 tons more than in 1935.

Total exports of the Bremen ports in seaborne traffic, as was the case with imports, have decreased continually since May. With a total of 305,267 tons in July, 1936, they were 20,494 tons less than those of June, 1936.

Decreases were chiefly in raw materials. Turnover of coals decreased by approximately 60,000 tons. Further, smaller quantities of spinning materials, timber, cellulose and metals were shipped. This loss was not counter-balanced by larger shipments of coke, mineral oils, stones and earth and artificial manures. Export of foodstuffs were also below those of the previous month.

At the Eastern Dry Dock the substitution of iron keel blocks for the old wooden blocks is in hand.

King George V. Dock.—Improvements have been made in the drainage arrangements at the Dry Dock and other minor alterations made.

The electric sub-station at Hartman Road has been extended, and improved switchgear installed.

The western part of the roadway on the South side has been reconstructed in reinforced concrete, and the work of reconstruction is proceeding.

Tilbury Dock.—The reconstruction of No. 34 Shed, which was destroyed by fire, has been completed, and the roofs and quays at Nos. 19 and 23 Sheds are being reconditioned.

River.—A contract has been placed for the construction of two 1,200 tons wreck-raising lighters, and the work has commenced.

General.—The more important works carried out for the maintenance of the undertaking include the modernisation of lifts and hoists at the London and St. Katharine and the India and Millwall Docks, the replacement of electric trucks and extensive overhauling of lock gates.

During the year 995,503 cub. yds. of material were dredged from the river in order to maintain and deepen the channels.

The quantity of mud removed from the Docks during the same period was 1,598,947 cub. yds.

General**Dock Labour.**

Under the terms of an Agreement dated 14th October, 1935, between the National Council of Port Labour Employers and the Transport and General Workers' Union and its associated Unions, certain restoration of cuts in rates of pay to dock labourers and other grades of workers whose rates of pay are regulated by those paid to dock labourers, were brought into operation on the 6th January, 1936.

Wreck Service.

Thirty-five vessels were removed from the river by the wreck-raising plant during the year, viz.:—2 steamers measuring 2,406 tons, 29 barges measuring 1,578 tons, 2 small motor craft and 2 small yachts. In addition, 1 steamer measuring 7,592 tons, 5 barges measuring 254 tons, and 1 yacht were raised in the docks.

Parliamentary: Port of London Act, 1935.

The Bill for this Act, which was deposited with the main object of giving statutory effect to the Authority's scheme for the modernisation of the Royal Victoria Dock, and dealt also with certain matters of a general character for which legislative sanction was necessary, received the Royal Assent on the 2nd August, 1935.

Members.

Mr. A. K. Graham was co-opted by the Elected Members in October, 1935, to fill the vacancy caused by the death of Mr. C. S. S. Guthrie.

On the other hand, export of finished manufactures via Bremen, after a temporary decrease in June, has increased once more. Export of chemicals, paper, iron and other metal wares showed quite considerable increases. This extension of the export of finished manufactures effected an increase in total exports by 14,519 tons over those of the previous year, in spite of the not inconsiderable fall in the export of foodstuffs and raw materials compared with July, 1935.

Iron goods and chemicals showed considerable increases compared with the previous year, as did also textiles, glass and glassware and goods made of non-ferrous metals, and machines. The decrease in the total amount of foodstuffs shipped was chiefly due to a large decrease in transport of rock salt.

Far less coal, coke, timber and cellulose were exported than in July, 1935. The increases in shipments of stones and earths, as well as manures and peat-moss, were not sufficient to counter-balance this.

Port Facilities at Caen.

According to the supplement to the "Usine" of the 29th August, the Société Metallurgique de Normandie has decided to take advantage of the recent deepening of the channel from Caen to the sea to bring up to Caen without transshipment the vessels carrying manganese from the Black Sea which used to unload at Dunkirk, from which port the portion of the cargoes consigned to the company was forwarded either by rail or by water. For the first time a cargo vessel has come up to Caen with a complete cargo of pyrites and manganese (4,500 tons) coming from Poti.



THE AGA SYSTEM FOR THE AUTOMATIC EXHIBITION OF
MARINE NAVIGATION LIGHTS ENABLES LIGHTHOUSE
AND PORT AUTHORITIES TO PLACE THEM IN SERVICE
AND IGNORE THEM FOR PERIODS OF TWELVE MONTHS
OR MORE.

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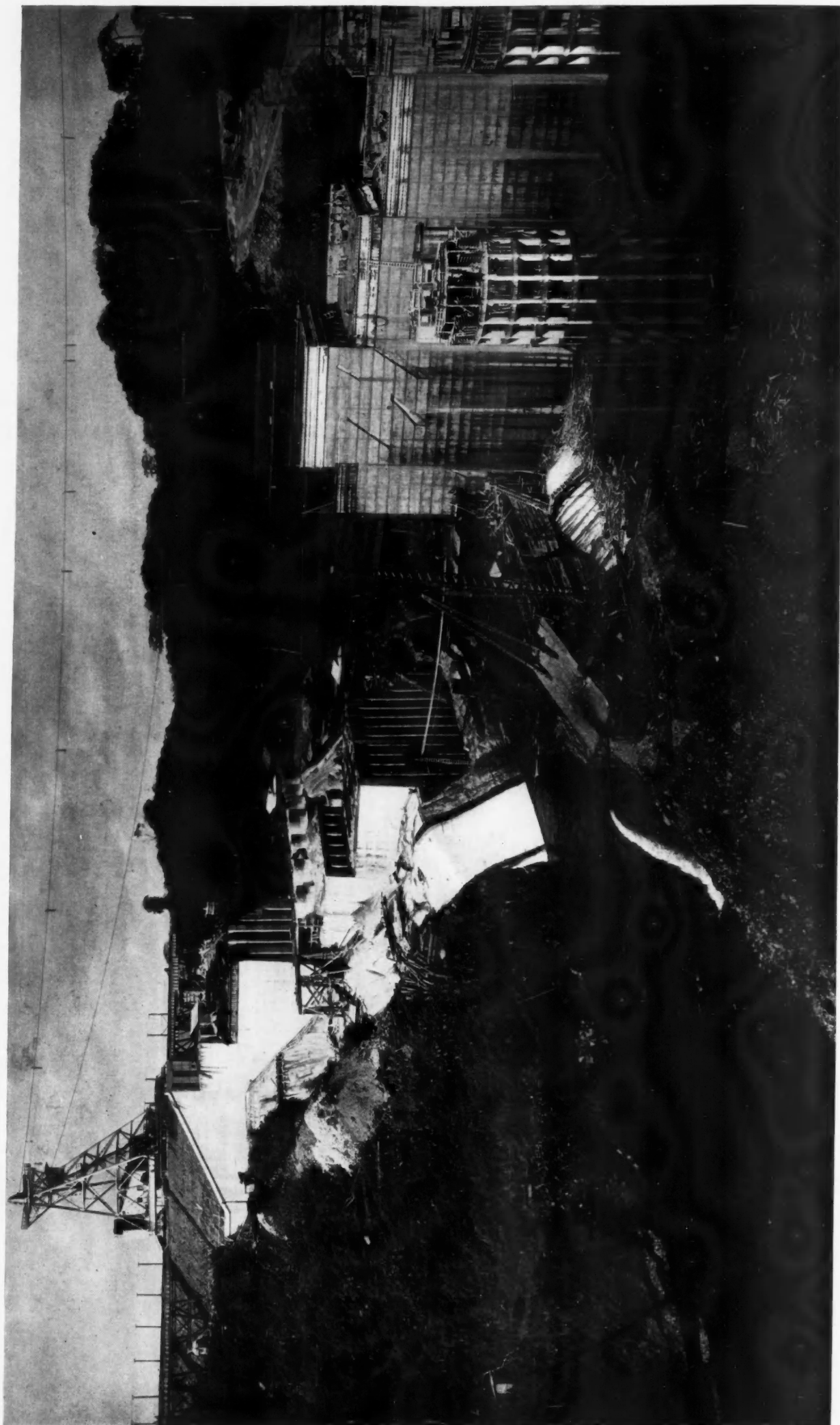
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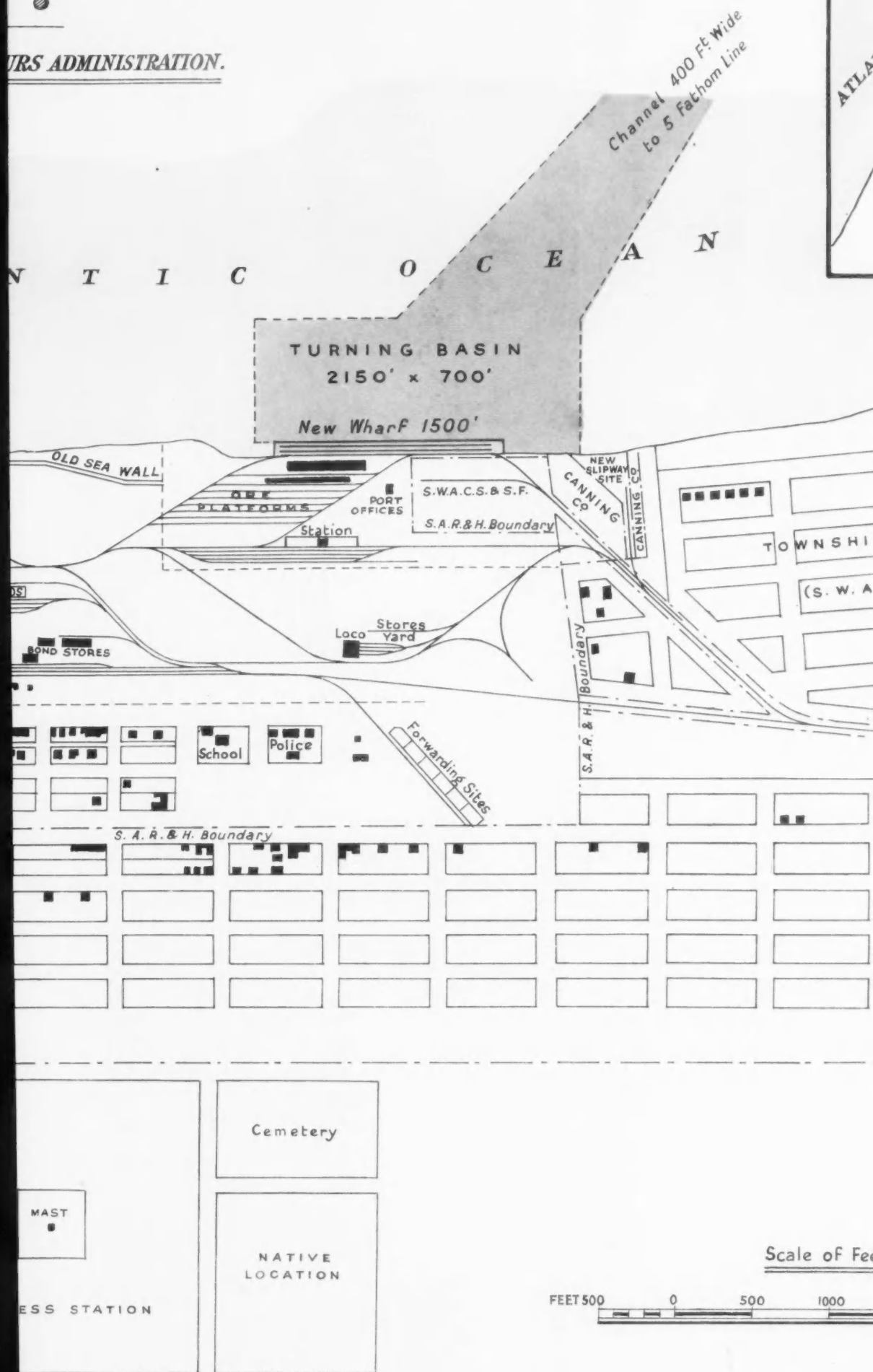
The Panama Canal: Madden Dam Project. South End of Dam, September 1, 1933.

WALVIS BAY.

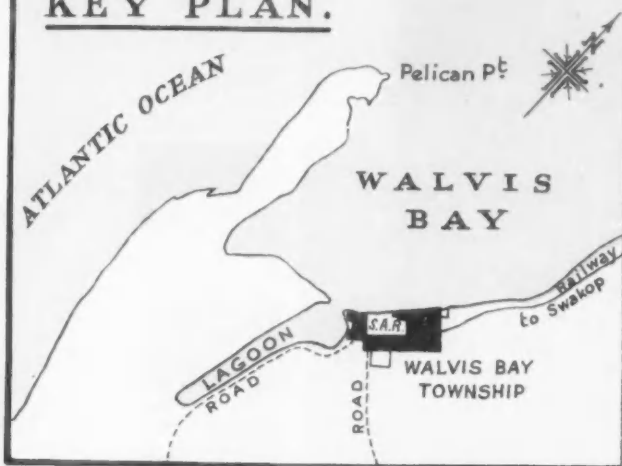
UNDER THE JURISDICTION OF THE SOUTH AFRICAN RAILWAYS & HARBOURS ADMINISTRATION



URS ADMINISTRATION.



KEY PLAN.



Scale of Feet.

1000 1500 2000 2500 FEET

The Panama Canal

Appointment of New Governor



The Panama Canal: Dredging Division Activities, Gatun Lake Area. New Dredging Division Headquarters and Town Site, Gamboa. View looking Northward from boom of Crane Ajax at Station 1460, showing development over Silver Town and Industrial Area. April 27, 1936.

NOTE.—The supervisory, technical, higher clerical and highly skilled mechanical employees, who are primarily citizens of the United States but include Panamanians and a few other nationalities are employed on what is known as the "gold role." The rest of the force, principally natives of the Tropics but including a few citizens of the United States, engaged on low paid work, are designated "silver" employees. These terms are derived from the former tropical practice of paying Americans and Europeans in gold, while the native or tropical labour was paid in local currency, usually based on silver.

Governor Schley's Administration.

THE many achievements in widely diversified fields which marked the administration of Colonel Julian L. Schley, the sixth Governor of The Panama Canal, come into sharp focus with the announcement on August 25th from the War Department that he has resigned in order to enjoy a brief leave before assuming command of the Army Engineer School at Fort Belvoir, Virginia.

Coincident with this news from the capital came word that President Roosevelt had appointed Colonel Clarence S. Ridley, Engineer of Maintenance for the past four years, as Colonel Schley's successor.

Directing the destinies of the Canal and the Panama Railroad Company through the critical years of the depression, Governor Schley had an exacting task which required not only the adoption of many practical economies but also the discovery of new ways to improve the usefulness of a \$500,000,000 enterprise that serves the commerce of the world.

Faced with this broad objective, he applied his energies along a wide front, which included the completion of Madden Dam, the most significant engineering project on the Isthmus since the opening of the Canal itself; the advancement of a sounder basis for determining tolls; the adoption of a learnership programme for training young men and women preparing for careers in the Canal service; the complete re-organisation of the personnel service; the setting up of a Plans Section, a department which assists divisions of the Canal and Railroad in finding methods for more effective operation; and the codification of all Canal Zone laws.

A score of other important projects were undertaken during Colonel Schley's administration, among which were the building of new waterfront facilities and housing quarters for the Dredging Division at Gamboa and the proposal and support of legislation which would provide annuities for old and disabled tropical employees of the Canal.

With the valuable training and experience of four years as Engineer of Maintenance during the term of his predecessor, Governor Harry Burgess, Colonel Schley took office in October, 1932, with a thorough understanding of the goals before him.

It was apparent at the beginning of Governor Schley's administration that the most difficult tasks ahead of him, aside from the building of Madden Dam, were not those of an engineering nature or those which involved directly the operation and maintenance of the Canal. In fact, it was necessary at the outset for Governor Schley to concentrate his energies on the further development of a well-integrated administrative organisation for effecting a more efficient control of the com-

plex machinery for running the Canal and the government of the Canal Zone.

Although realising that these questions of internal organisation and administration lacked the romantic gleam for which the Goethals period almost two decades before had established such a brilliant precedent, Governor Schley knew that they were as vital to the Canal enterprise as a whole as the performance of impressive engineering feats. As his record so adequately shows, he found a compelling challenge in wrestling with these problems which were of great significance, not for their physical magnitude, but for their deep-rooted importance from financial, legal, and social viewpoints.

A modest, retiring man, possessed of strong convictions and finely attuned sensitivity, Governor Schley stayed out of the limelight but worked with energy, speed, and precision on the multitude of problems which confronted him.

No division or department head ever had to walk into the Governor's office with an elaborate explanation of the com-



Colonel JULIAN L. SCHLEY.

The Panama Canal—continued

plexities besetting him, for Colonel Schley knew exactly what was happening in each branch of the highly intricate organisation throughout the length and breadth of the Zone.

An alert and discerning executive who grasped details without being enmeshed in them, he expedited an impressive amount of business between eight and four o'clock, six days a week, often staying in his office long after his subordinates had finished their work and gone home. When anyone brought the Governor a matter for his consideration and action, he gave it such prompt attention that it never fell into the fatal category of "unfinished business." So orderly were his methods of executive control that he could always "take on one more job" without crowding his programme or minimising his efficiency.

1914, and the increases in traffic between 1922 and 1925 had further emphasised the necessity for some definite form of relief. In addition, there was the problem of providing flood control of the Chagres River during the season of heavy rains when the extra volume of water adversely affected the Canal.

With the ultimate decision to build a straight, gravity-type concrete dam to provide a reservoir and hydro-electric plant at Alhajuela on the Chagres River, preliminary projects were undertaken at the beginning of the fiscal year 1920. These included the construction of a highway to Alhajuela from the existing one near Summit, the erection of telephone and power transmission lines, completion of a topographical survey of the reservoir area, and the examination by diamond-drill boring of several dam sites.



The Panama Canal: Madden Dam Project, Drum Gate Operations. December 18, 1934.

Like that of his predecessors, Governor Schley's door was always open. Collectively and individually, men and women in all types of jobs came to present their views. He was never too busy to see them, never too busy to hear their grievances or to make amends for any injustices which might have arisen somewhere along the line.

Labour organisations in particular, although frequently disagreeing with him, were warm in their praise of the open-minded and fair manner in which he patiently heard their complaints. In fact, the day before Governor Schley left the Isthmus a delegation of labour leaders came to bid him farewell and to express their appreciation of the thoughtful consideration he had given their problems.

Governor Schley on many occasions demonstrated the strength of his convictions through his clear-cut and incisive decisions. When he felt that some policy of the Canal or Railroad should be changed or restated, he acted without a second thought as to the petty repercussions and quibblings which might ensue.

An advocate of stubborn frankness and absolute sincerity in all questions affecting the public, he never trimmed his sails to catch the winds of popular favour. It was the long-term efficacy of his actions and never the expediency of the moment which motivated his decisions. Considerate of his successor who he knew would inherit any unpleasant issue that he left untouched, he took pains to clear the docket of such questions before declaring his job finished.

A few of the high-lights of the Governor's administration are briefly set forth in the ensuing paragraphs for the purpose of showing the broad scope of his achievements in problems of engineering, organisation, administration, and legislation.

Madden Dam.

Although a considerable amount of work on the preparations for building Madden Dam had been completed during Governor Burgess's term of office, while Colonel Schley was Engineer of Maintenance, the major part of the actual construction work was conducted during the last four years.

The need of more water in the Gaillard Cut during the dry season had been recognised since the opening of the Canal in

Much of the necessary work which preceded the construction of the dam itself was executed by the Canal's labour forces. In fact, before the personnel of the private contractors arrived on the scene the Canal force had built new quarters, installed water and sewer systems, established a testing laboratory, post office, commissary, and club-houses.

The designs and specifications for the main dam, the left-ridge dam, the 13 saddle dams and the power plant were made in the office of the Bureau of Reclamation in Denver, Colorado, with the assistance of the Canal's Designing Engineer.

After an estimate of the cost of the work had been placed at \$15,000,000 and the contracts signed, work began on the dam itself, October 13th, 1931. By June 30th of the following year there was a total of 1,154 men working on the project, including those employed by the contractors.

The placing of concrete in the dam was started in August, 1932, and was being continued successfully when Colonel Schley succeeded from the position of Engineer of Maintenance to that of Governor in October. During the entire fiscal year 1933 the volume of concrete placed amounted to 239,600 cubic yards, or 41 per cent. of the total.

Following with intense interest and care each step in the building of the dam, Governor Schley did not for a single day lose touch with any phase of the work. Consulting engineers were invited to contribute their counsel, extensive researches were made as to the temperature and movements of the water and other measures were taken so as to insure the maximum utility of the project.

The construction of Madden Dam was practically completed during the fiscal year 1935, except for minor and special finishing features, of which the most important were the grouting of contraction joints in the main dam and ridge tightening by injection of clay grout. This work is being done at the present time.

The total cost of Madden Dam is not expected to exceed \$13,000,000. It is interesting to note that this figure is \$2,000,000 less than the amount originally estimated.

Tolls Situation.

Throughout his administration, Governor Schley has made a concerted effort to advance a more equitable system of measur-

The Panama Canal—continued

ing vessels and determining tolls. With unflagging persistence the Governor has repeatedly set forth the need for legislation to remove the existing inequalities in the treatment of vessels now passing through the Panama Canal and to prevent further reduction in tolls charges by means of making structural alterations in vessels that reduce their net tonnages but have practically no effect on their cargo-carrying capacity.

Under the present dual system, which is considered unsatisfactory by the shipping lines as well as by the Government, tolls are limited by determination of United States net tonnage which is not at present related closely to the earning capacity of vessels, and the result is that ships of different types now pay widely divergent amounts per ton of actual earning power.

In explicit and forceful language the Governor has for the past three years set forth this question in his annual reports to the Secretary of War. He has shown that the divergence between earning power and the limiting factor which governs the maximum collection of tolls grows greater year by year, and consequently the Government's revenues from tolls are being constantly reduced through inability to collect tolls on an equitable and uniform basis.

The Governor's hard work on this problem has already borne fruit. In April, 1936, Congress passed an Act authorising the President to appoint a neutral committee of three members to make an impartial survey of the entire tolls situation and report its recommendations. Such a committee recently arrived on the Isthmus and collected valuable data for its final report, which will be submitted to Congress at its next session in January.

Learnership Programme.

Another evidence of the progressiveness of the Schley administration was the inauguration of a learnership programme designed to give opportunities to young men and women to enter the Government service in positions other than those included in the system of apprenticeships for the skilled crafts.

The new programme was put into effect last June with the opening of a two-year training period for 52 learners, a group comprised of young American men and women between 18 and 25 who seek permanent employment with the Canal or the Railroad Company. Working with the assistance of the Division of Schools and under the guidance of the Service Bureau of the Personnel Division, individual instruction is being given each student by a specialist in the field.

The Plans Section.

During Governor Schley's administration the Plans Section, an administrative agency reporting directly to the Engineer of Maintenance, was created. From its inception, in October, 1934, the function of the section has been to assist the department heads in the conduct of surveys and investigations for the purpose of obtaining a clearer analysis of existing conditions and of making recommendations designed to increase efficiency in operation, to bring about closer co-ordination within and between the departments and to effect more satisfactory accounting methods.

The formation of this agency, which is under the immediate direction of the Office Engineer, has already resulted in many benefits to the Railroad and the Canal. By means of comprehensive analytical surveys, the Plans Section has been able to discover within a number of departments opportunities for appreciable improvement.

Gamboa Project.

Among other important construction projects which took place during the Governor's term was the development of the Gamboa townsite and dredging station at the junction of the Chagres River and the Canal. This work was undertaken with the purpose of transferring to Gamboa the personnel of the Dredging Division, which has had inadequate facilities and unsatisfactory headquarters at Paraiso for a number of years.

This extensive project has included the installation of new waterfront facilities to replace those at Paraiso, comprising shop buildings, storehouses, repair dock and small-boat landings. Quarters and community buildings for a population of almost 3,000 have also been provided, together with water and power lines, sewerage system and roadways.

The location of this new dredging station is particularly advantageous from the standpoint of Canal maintenance, because it is near any possible point of closure of Gaillard Cut resulting from slides and spoil dumps in Gatun Lake.

The removal of the dredging station to Gamboa will permit eventual abandonment of Paraiso as a townsite and evacuation of quarters in Pedro Miguel, Ancon, Balboa, Red Tank, and La Boca, now occupied by Dredging Division employees, will provide a certain amount of housing needed for other employees. However, many obsolete buildings will be condemned and torn down upon the completion of the Gamboa townsite within the next year.

Colonel Ridley's Appointment.

President Roosevelt's appointment of Colonel Clarence S. Ridley, Engineer of Maintenance for the past four years, as the seventh Governor of The Panama Canal and successor to Colonel Julian L. Schley, was announced on August 25th at the Administration Building, Balboa Heights, Canal Zone, following the receipt of radio advices from Washington D.C.

Colonel Ridley's advancement to the highest post in the Canal organisation marks the climax in a distinguished career, which includes service as Assistant Engineer of Maintenance between 1921 and 1924, during Governor Jay J. Morrow's administration, and later as Engineer of Maintenance throughout Governor Schley's term, which began in October, 1932.

Having visited the Isthmus in 1912 during the construction period, and with seven years' previous service in the Canal Zone, Colonel Ridley may almost be considered as an old-timer in the Canal service.

**Colonel CLARENCE S. RIDLEY.**

The son of Judge and Mrs. William Ridley, Colonel Ridley was born on June 22nd, 1883, in Corydon, Harrison County, Indiana. After his early schooling in his native state, he entered the Military Academy at West Point, July 11th, 1901. Graduating with high honours and fourth in a class of 114, he received his commission as a Second Lieutenant in the Corps of Engineers, June 13th, 1905.

Following tours of duty with troops at Fort Leavenworth and Fort Riley, both in Kansas, during 1905 and 1906, he was ordered to Cuba in February, 1907, for approximately four months. Upon his return he was promoted, on June 9th of that year, to First Lieutenant. The following year he was graduated from the Engineer School at Washington Barracks. From 1909 to 1912 he served with troops in the Hawaiian and Philippine Islands, and at Fort Leavenworth.

In October, 1912, at the age of 29, he reached his Captaincy and was assigned to river and harbour work in North Carolina, where he had local charge of construction of two sets of locks and dams, and later of all river and harbour works in the Washington-North Carolina district.

In 1916 he was assigned duty in the office of the Chief of Engineers, Washington, D.C., where he directed the development of the Engineer Officers Reserve Corps. He was promoted to Major in 1917, and in August of the same year appointed to the temporary rank of Lieutenant Colonel. In October, 1917, he was appointed Colonel and Senior Military Aide to President Wilson, and supervised the care of public buildings and grounds in the city of Washington. During this period, as a part of his duties, he had charge of the construction of the Arlington Memorial in Arlington Cemetery and the Lincoln Memorial in Potomac Park, and served as executive officer of the National Commission of Fine Arts as well as a member of the first Zoning Commission of the District of Columbia. While he was the President's aide he was decorated by the late King Albert of Belgium at the White House on October 30th, 1919, as an Officer of the Order of Leopold.

Coming to the Isthmus in May, 1921, to assume his duties as Assistant-Engineer of Maintenance, Colonel Ridley had an opportunity to direct many of the departments of the Canal at a time when the organisation was entering into a period of settled operation and maintenance.

The Panama Canal—continued

In this office he had supervision of the Municipal Engineering Division, Electrical Division, Locks Division, Section of Office Engineer, and Section of Surveys. His immediate superiors were former Governor Meriwether L. Walker, at that time Engineer of Maintenance, and Governor Jay J. Morrow. Colonel Ridley also represented the Canal administration on the Wage and Complaints Boards.

Relieved of his Panama Canal duty on April 19th, 1924, he was assigned to duty as student officer at the Command and General Staff School at Fort Leavenworth, where he was graduated with honours fourteen months later.

Beginning in July, 1925, and for the ensuing three years, he was District Engineer stationed at San Francisco and in charge of all river and harbour improvements on the Sacramento and San Joaquin Rivers.

From July 24th, 1928, to January 9th, 1929, he was commanding officer of Fort Du Pont, Delaware, and of the First Engineers stationed there. However, during this period he was ordered for detached service in connection with hurricane relief work in Puerto Rico. After spending about ten weeks on the island at the end of 1928, he returned to San Juan in January, 1929, as direct representative of the Secretary of War and chairman of the local relief board, in which capacity he was engaged in the reconstruction of damaged roads and schools and in loaning money to farmers.

He received his promotion to the rank of Lieutenant-Colonel February 19th, 1929. Following his work in Puerto Rico, he attended for a year the Army War College in Washington, graduating in the spring of 1931. After completing these studies he served as instructor at the Army Industrial College, an institution established after the war to familiarise officers with methods of industrial mobilisation.

Returning to the Isthmus in October, 1932, Colonel Ridley became Engineer of Maintenance under Governor Schley, his predecessor in this position. His duties during the past four years have been concerned with assisting the Governor in the administration of his office and in acting as Governor during Colonel Schley's absence on official business in Washington.

The Dredging Division and the Plans Section have been under his direct supervision, and he has been closely identified with the construction of Madden Dam. Most important, perhaps, of the activities for which he has been directly responsible during his term as Engineer of Maintenance have been those involving a searching analysis of many of the more important activities of the Canal and Railroad with a view to effecting improvements tending toward a higher degree of efficiency and the substitution, where required, of more modern methods of operation. These analyses have involved a careful examination of the financial structure of the Canal enterprise.

Seven years of service with The Panama Canal have afforded Colonel Ridley ample opportunity to become thoroughly familiar with the numerous questions affecting the relations between the Republic of Panama and the Panama Canal administrations. As a result of this experience he is keenly aware of the advantages to be derived from a continuance of the existing friendly relations between the people of the Republic of Panama and of the Canal Zone.

He attained the rank of Colonel August 1st, 1935, and in accordance with War Department regulations concerning duty with troops for officers on the detached list he was named on April 24th of this year as Engineer of the Panama Canal Department in addition to his duties as Engineer of Maintenance. Since Governor Schley's departure on August 9th, Colonel Ridley has been Acting-Governor.

Aden Port Trust

The following are the returns of shipping using the Port of Aden for the month of July, 1936:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	150	570,292
" " under 200 tons ...	4	539
Government Vessels ...	13	37,698
Dhows ...	15	501
PERIM.		
Merchant Vessels over 200 tons ...	7	17,980

The total value of imports excluding Government stores was Rs.53,46,000/- as compared with Rs.45,45,000/- for July, 1935, and of exports Rs.32,33,000/- as compared with Rs.33,34,000/-.

The total value of both imports and exports together was Rs.85,79,000/- as compared with Rs.78,79,000/- for the corresponding month last year.

Imports during the month were above those for July, 1935, in the case of grain, pulse and flour, raw hides, raw skins, sugar, grey, white and printed or dyed piece goods, twist and

TRADE OF THE PORT.

Article.	Unit	Imports		Exports	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal ...	Tons	0	0	21	476
Coffee ...	Cwts.	4,364	1,08,194	6,223	2,00,120
Grain, Pulse and Flour ...	"	70,901	4,18,530	26,550	1,33,840
Gums and Resins ...	"	268	7,676	1,666	35,183
Hardware ...	"	0	35,247	0	24,061
Hides, raw ...	No.	8,327	8,251	5,525	10,214
Oil, Fuel ...	Tons	31,937	7,53,191	3,099	70,000
" Kerosene ...	Gls.	37,448	21,298	1,920	1,434
" Petrol ...	"	69,999	63,395	0	0
Salt ...	Tons	0	0	21,700	2,27,400
Seeds ...	Cwts.	1,707	14,975	303	3,749
Skins, raw ...	No.	294,160	2,06,196	385,570	3,81,865
Sugar ...	Cwts.	34,463	1,61,569	29,557	1,38,562
Textiles—					
Piece Goods, Grey ...	Yds.	4,689,950	5,90,270	3,670,650	4,52,043
" " White ...	"	1,219,992	1,79,710	639,377	99,961
" " Printed or Dyed ...	"	1,616,903	2,94,154	1,612,892	3,31,726
Twist and Yarn ...	Lbs.	121,503	55,110	48,076	21,013
Tobacco, Unmanufactured ...	"	1,757,420	2,78,761	500,276	88,192
" Manufactured ...	"	102,508	1,27,295	84,924	75,837
Other Articles ...	No. of Pkges.	63,171	14,97,276	19,533	4,99,866
Treasure, Private ...	—	0	5,25,494	0	4,37,090
Total ...	—	—	53,46,012	—	32,32,632

The number of merchant vessels over 200 tons that used the port in July, 1936, was 150 as compared with 144 in the corresponding month last year, but the total tonnage was 570,000 as compared with 611,000.

Excluding coal, salt, fuel oil and Military and Naval stores and transshipment cargo the total tonnage of imports in the month was 11,100 and of exports 6,200, as compared with 8,100 and 5,100 respectively for the corresponding month last year.

yarn, unmanufactured and manufactured tobacco and private treasure; and below in the case of coffee, gums and resins, hardware and seeds.

Exports were above those for July, 1935, in the case of raw skins, sugar, grey, white and printed or dyed piece goods, and manufactured tobacco; and below in the case of coffee, grain, pulse and flour, gums and resins, hardware, raw hides, seeds, twist and yarn, unmanufactured tobacco and private treasure.

North-East Coast Notes

DESPITE the handicaps to trade consequent upon Continental complications—that have led to the stoppage of shipments of coal to Italy and more recently to Spain—business on the North-East coast during the past month has been fairly well sustained. Owing to the absence of the usual reports made to the Tyne Improvement Authority (no meeting of the Commission being held in August) the only returns available are the weekly figures, and these are appended for the four weeks of August:—

Week Ended	Coal Tons	Coke Tons	Increase or Decrease Tons
August 8th ..	195,914	21,966	Inc. 43,394
August 15th ...	225,717	22,892	Dec. 4,801
August 22nd ...	235,006	18,670	Dec. 12,871
August 29th ...	230,175	26,475	Dec. 26,343

Unofficial figures put the total shipments from the area for the eight months to the end of August at 17,016,511 tons, compared with 17,118,545 tons for the corresponding period of last year.

As an indication of the increasing use of Newcastle Corporation Quay, it is reported that during the five months ended August 31st last, 630 vessels of a net registered tonnage of 387,565 tons paid dues to the Corporation amounting to £3,081, against 623 vessels which paid £2,881 net in the corresponding period of last year. The total receipts for the five months ended August 31st last amounted to £15,310, being £920 more than in the same period of last year.

Major E. E. McClintock retired at the beginning of September from the position of mechanical engineer under the Tyne Improvement Commission after 34 years' service, 25 of which he was manager of the Commissioner's Howdon Yard. The occasion was marked by a presentation made at the Commissioners' Newcastle offices, when Mr. R. F. Hindmarsh, chief engineer, handed to Major McClintock a fishing equipment, and paid a high tribute to Major McClintock's work for the Commission.

Ducal Survey of the Tyne.

There was a pleasant function on the Tyne in August when on the 10th the Duchess of Northumberland, with her son the Duke, Lord Hugh Percy, Lady Elizabeth Percy, and Lady Diana Percy, were the guests of the Tyne Commission on a private trip on the river in the launch "Sir William Stephenson," and were shown the improved state of the shipbuilding industry, the latest shipping facilities, and the prospective development of various factory sites and undertakings. Sir Arthur Sutherland, Chairman of the Tyne Improvement Commission, in welcoming the guests, said it was a great pleasure to the Commissioners to have such distinguished guests taking part in an informal journey of inspection to see how the Tyne fared now that the clouds of depression had dispersed, and the outlook was better than it had been for years. No Northumbrian could speak of "the House of Percy" without being deeply grateful for the public-spirited work of successive generations of Dukes of Northumberland. The late Duke rendered invaluable service to many institutions and societies, and not the least to the North of England Shipowners' Association, of which he was president. The preceding Duke was also a tower of strength in the public life of Tyneside and neighbourhood.

Sir Arthur Sutherland on Trade Prospects.

Sir Arthur Sutherland had some interesting observations to make when addressing the shareholders of the Tyne-Tees Shipping Co., as chairman at the end of August, and as Chairman of the Tyne Improvement Commission he spoke, of course, with authority. After dealing with the Company's affairs, Sir Arthur observed that the unrest in Europe to-day militated against any feeling of security amongst nations and trade suffered as a consequence. However, he added, signs of improvement are not wanting, and he was sure that, provided that nothing untoward occurred, the Company might look forward to another year of satisfactory progress. He continued:—Since our last annual report was prepared a still further improvement has taken place in the trade and industry of the river. Unemployment has gone down substantially, and it may continue to fall as work in many forms increases. The change in the position of Tyne shipbuilding is remarkable. At present there are 17 British war vessels building or on order, and in addition about a score of merchant ships representing nearly 200,000 tons. This is a fine augury in the matter of work for the coming winter and next year. The development of the new trading estate in the Team Valley will

be watched with interest. It is evidently to be laid out as quickly as possible, and before long we may see a large productive centre in operation. The Tyne-Tees Company's Gateshead quay, now enlarged, will be very convenient for sea transport of Team products, and also for the landing of raw materials from other districts. Thus the upper reaches of the river on the south side, and the trade of Gateshead as a whole may witness very considerable expansion in the near future. Sir Arthur added that the Company had undertaken the extension of Gateshead quay westwards to the Swing Bridge, thus obtaining an additional 220 feet of berthage and another shed. That additional accommodation would enable them to cater for any extension of trade. Another development of the Company had been the re-opening of the outward service from Sunderland to London, which had been suspended for some time owing to lack of trade. They had also made arrangements for the Company's vessels to berth at the new deep-water quay at Sunderland, instead of in the South Docks.

Wear, Hartlepool and Tees Trade.

An increase of 33,639 tons is shown in the report of coal and coke shipments from the Wear during July, the total being 354,280 tons. For the past seven months the total was 2,354,259 tons, an increase of 101,129 tons on the similar period of 1935. Other exports totalled 26,769 tons for the seven months, compared with 21,491 tons for the corresponding period of 1935. Imports totalled 167,355 tons for the seven months, against 189,146 tons in 1935.

There was a decrease of 31,824 tons in the coal and coke shipments from the Hartlepoons during August, compared with the same month of 1935, the figures being 246,231 tons, against 278,058 tons. For the eight months of this year the shipments were 2,083,726 tons, against 2,264,786 tons for 1935, a decrease of 181,060 tons, or 7.33 per cent. Timber imported during the eight months totalled 256,638 loads, compared with 257,983 loads in the corresponding period of 1935.

The quantity of iron and steel shipped from the Tees fell from 52,737 tons in July to 41,630 tons in August. This is due to the fact that works are so busy on home trade that foreign business takes second place. Shipments of pig iron and of manufactured iron and steel to coastal ports increased in August, the total being 21,325 tons, compared with 20,858 tons in July, while cargoes for foreign ports fell from 32,871 tons to 20,305 tons. South Africa was the largest overseas customer with 5,297 tons, while India took 2,446 tons, Southern Rhodesia 1,644 tons, Denmark 1,812 tons, Straits Settlements 1,370 tons, and Argentina 1,396 tons.

Rhine Shipping.

The number of barges navigating the Rhine and adjoining waterways at the end of 1935 are given at 12,459 with a total tonnage of 8,028,027. They were distributed over the States participating in Rhine shipping according to the flag under which they were sailing, as follows:—

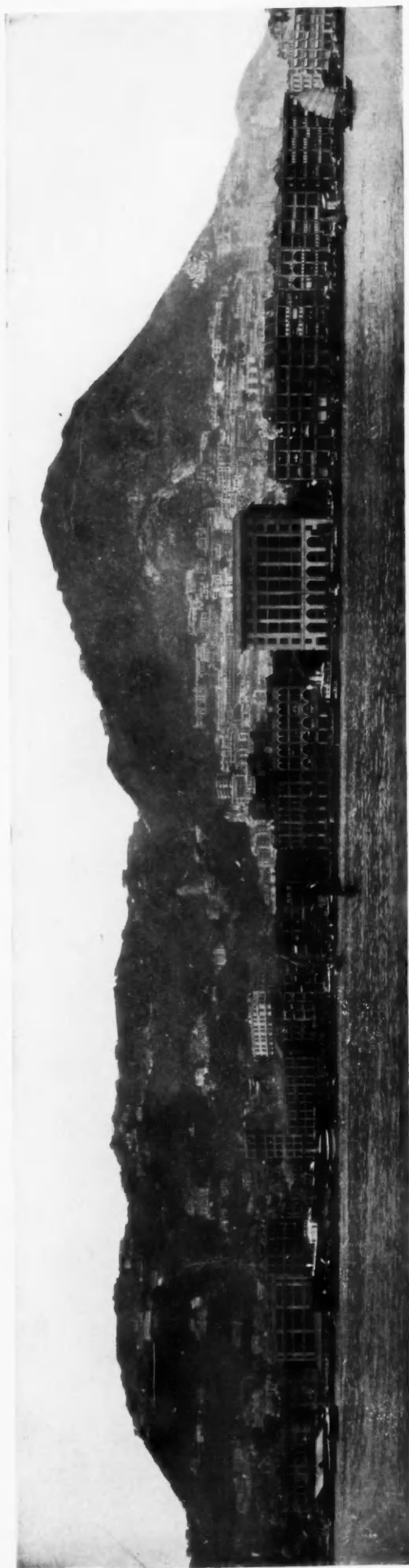
	Number of Barges	Tonnage	Percentage of Total Tonnage
Netherlands ...	6,071	3,656,773	45.5
Germany ...	3,287	2,630,791	32.8
Belgium ...	2,613	1,256,224	15.6
France ...	385	391,090	4.9
Switzerland ...	77	80,824	1.0
Luxembourg ...	26	12,325	.2
Total ...	12,459	8,028,027	100.0

Project for Volga-Baltic Canal.

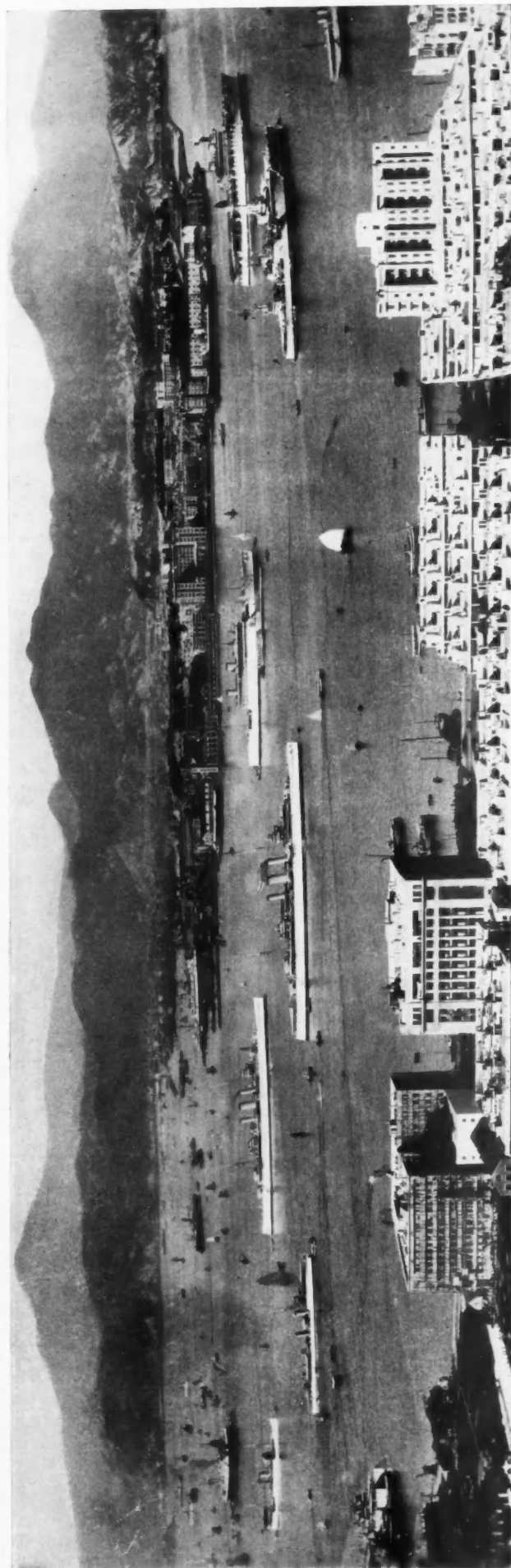
A plan for a Volga-Baltic Canal, the first link in the system of canals to connect the four important seas—the Black Sea, the Caspian, the Baltic and White Seas—was considered at a conference in Leningrad, attended by representatives of the Commissariat of Waterways, the State Planning Commission and other public bodies. In his report, Mr. Gusev, who represented the Commissariat of Waterways, said that the largest and most important waterway in the Soviet Union would include the Baltic-White Sea Canal, the Great Volga, the canals of the Volga-Moscow and Volga-Don systems and, finally, the Volga-Baltic Canal.

Three routes for the Volga-Baltic Canal were suggested—through the Mariisk system or the Tikhvinsk and Vyshnevolotsk waterways. Most of the specialists favoured the Mariisk system as the most economical.

Far Eastern Ports



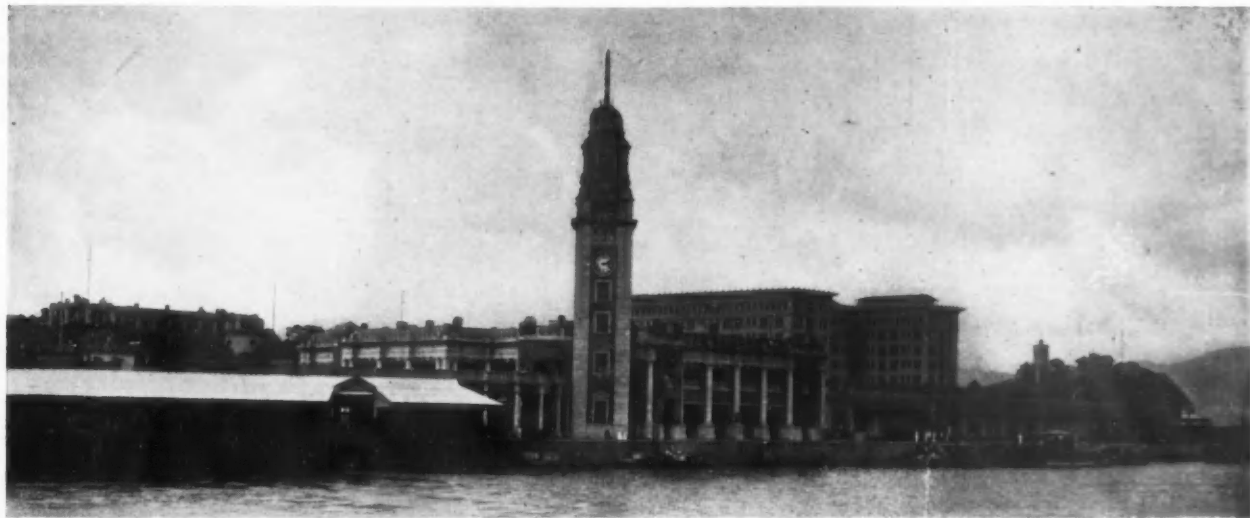
A view of the waterfront of Hong Kong Island. This shows a portion of the City of Victoria and the Peak, rising to 1,720-ft. above sea level behind it. All of the buildings on the front and most of the City of Victoria is on land reclaimed from the harbour.



British warships moored in Hong Kong Harbour. This view is taken from the South side of the harbour (Hong Kong Island) and shows Kowloon on the North side of the harbour, with the hills behind. Kowloon is on the mainland and is the terminus for the Kowloon-Hankow Railway. Kowloon and a large area behind it of about 300 square miles is British territory.

Far Eastern Ports : Their Future Developments

By Professor C. A. MIDDLETON SMITH, M.Sc., M.I.Mech.E.
(Taikoo Professor of Engineering in the University of Hong Kong)



The Kowloon Railway Station and Clock Tower on the North side of Hong Kong Harbour. This will be the Southern terminus of the Hong Kong-Hankow Railway. The through line has just been completed, and it will be possible, at no distant date, to travel by rail from Hong Kong to Calais.

IN these days the Far East so often appears in the headlines of English newspapers that there is little need to dwell upon the importance to world economics of that part of the world. The volume of shipping on the Pacific Ocean has increased enormously in the last century and, in comparatively recent years, some of the Far Eastern ports have been developed in the endeavour to provide the required facilities. Many schemes for port development have been proposed, and no doubt some of them will be carried out in the not distant future. British companies still retain a premier place in the shipping returns of the Far East, although their position has been challenged.

The great increase in the volume of shipping using Far Eastern ports have compelled those interested seriously to consider the improvement of existing ports and the possibility of developing new ones.

The New Far East.

During recent years Japan and the United States have entered into competition with European steamship lines on the Pacific, in a very determined manner.

A British authority on economics has written of China:—

"There is no country in Europe or in Asia with a greater potential wealth. Modern means of transport and other communications must be established to permit such development to take place." An eminent Chinese has written that the economic, social and political future of China "all hinge on rapid and cheap means of communications."

That fact is now fully recognised by all Chinese Governments. In the old days the attitude of Chinese officials was one of opposition to foreign trade. There has been, in this century, a complete swing of the pendulum. Practically all officials in China to-day—many of whom have been educated abroad—clamour for foreign trade, not only to increase the Custom's Service revenue, but to modernise the industries, and to develop natural resources.

In no country in the world to-day is the need of port development greater than in China. Valuable work has been done in recent years in this connection in Shanghai, Hong Kong and other ports, but more is required.

The dramatic evolution of Japan, from an internationally unimportant State into a world-power, has made all educated Chinese anxious to modernise China. That was the main urge of the propaganda of China's national hero of the 1912 revolution, Dr. Sun Yat Sen; a prominent feature of that propaganda was the improvement of the waterways and ports of China.

British Interests in the Far East.

The two impediments to rapid progress in such matters have been and are (1) international political complications, not improved by the tension between Russia and Japan; (2) financial difficulties; (3) lack of a unified Government in China.

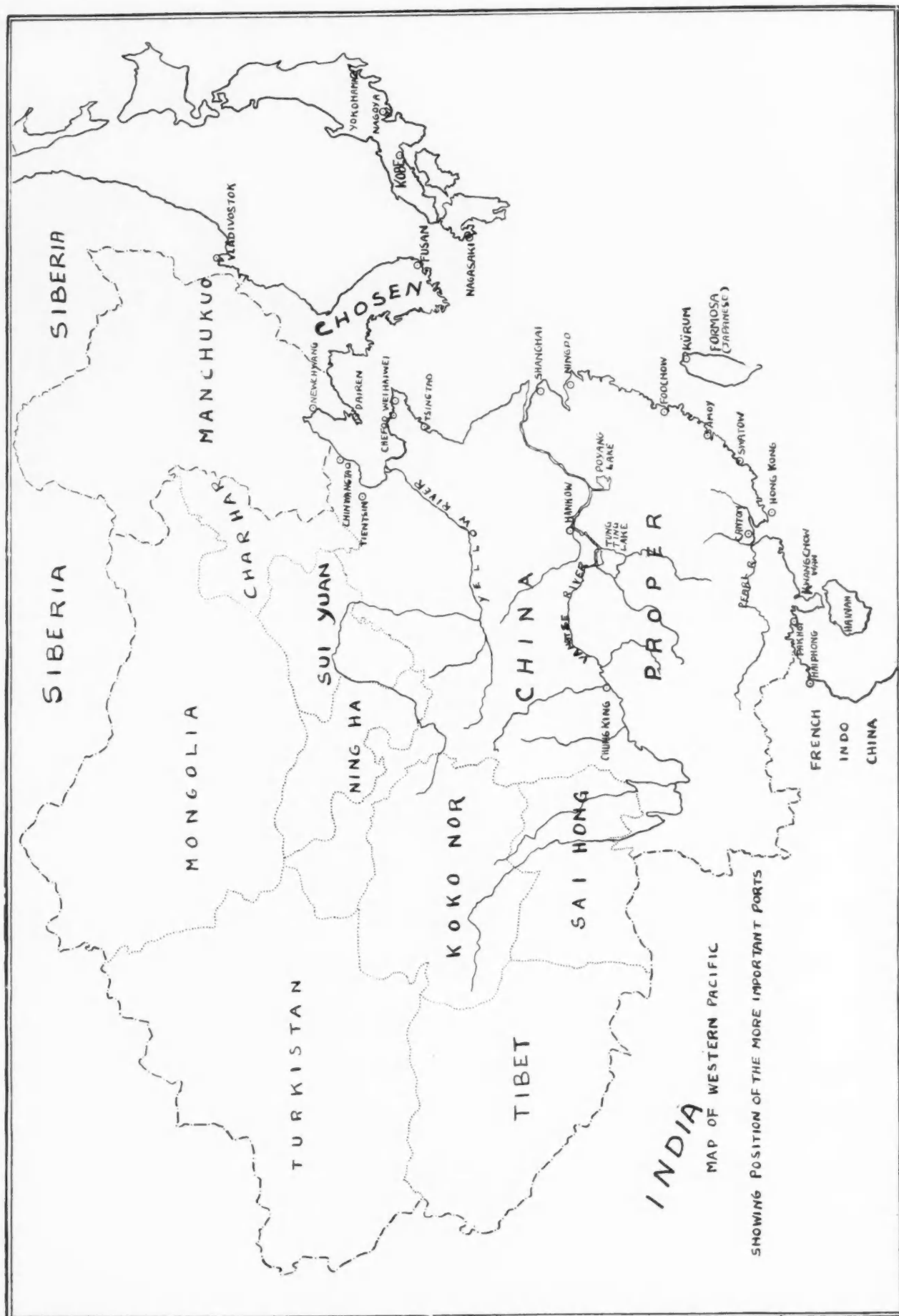
In spite of these, and other difficulties, progress is being made. The enormous trade potentialities of the Western shores of the Pacific, including China, French Indo-China, Siam and Malaya and the huge islands to the South (Java, Sumatra, Borneo, etc.) make ports in those parts of the world of tremendous interest to all interested in shipping. Their importance must increase each year. The chief ports in the Far East are shown on Maps (1) and (2).

Singapore, Hong Kong, Shanghai and Kobe (Japan) are at present the four most important ports in the Far East. In the first three the British have invested vast sums and have enormous trade interests.



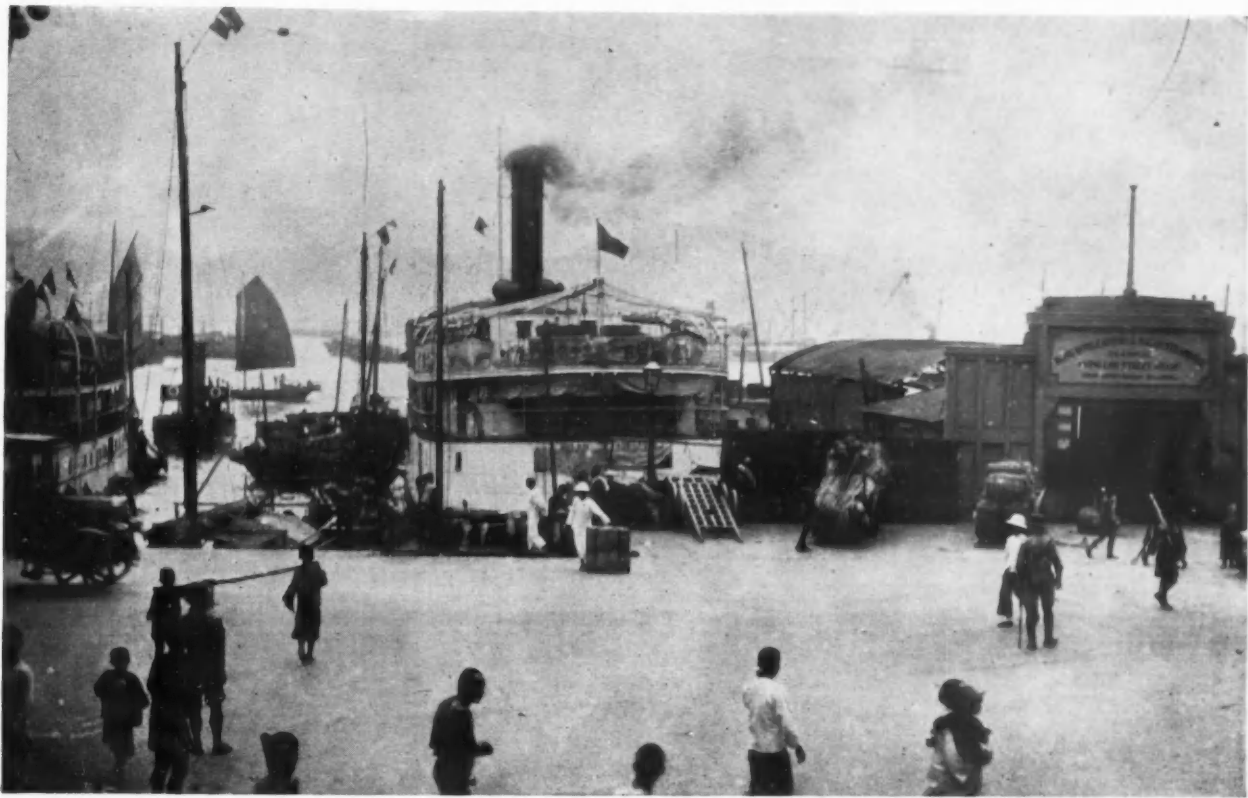
Map 2, showing Far Eastern Ports South of Hong Kong.

Far Eastern Ports



Map 1 showing the Ports of China and Japan.

Far Eastern Ports—continued



A Wharf, with a Canton river steamer alongside, in Hong Kong.

Consider the (approximate) figures for tonnage entering various ports in the year 1932.

Ports of the World and Tonnage entering them in 1932 (in Millions).

Locality and Name of Port	Tons
China and Japan.	
Shanghai	19½
Hong Kong (excluding junks and launches)	19½
Kobe	22½
Osaka	14½
Yokohama (foreign only)	14½
Southern Asia, Java, Australasia.	
Tsingtao	3½
Singapore	14½
Batavia	6
Manila	6
Sydney	9
Melbourne	6
Calcutta	4
Americas.	
New York (foreign trade only)	26
Los Angeles	19½
San Francisco	18½
Buenos Aires	15
Vancouver	10½
Europe.	
London	25
Hamburg	18½
Marseilles	15½
Southampton	10½
Glasgow	7½
Amsterdam	4½

N.B.—The above figures are approximate, in some cases being obtained by scaling diagrams. They are, however, of comparative value.

A noticeable feature in the tonnage returns for world ports is that whereas Kobe, London, New York, Singapore all reached a peak in or around 1930, and have since declined, Shanghai and Hong Kong have steadily risen in value.

The British base in the Far East is the Crown Colony of Hong Kong. In Shanghai the majority on the Municipal Council of the International Settlement are of British nationality. The largest share of the coastal trade of China is in the hands of British shipping companies. In 1935 the total tonnage cleared in Chinese ports (excluding Hong Kong) was 18,541,804 tons British, and next came the Japanese with a total of 9,197,376 tons.

For Hong Kong the 1935 returns are not yet available, but for December the total British tonnage was 121,040, Dutch 7,712 and Japanese 1,653 tons. In the boom year of 1922 Hong Kong cleared more tonnage than any other port in the world.

Japan and the Far Eastern Trade.

The immense development of Japanese ports and shipping during the last half-a-century will be discussed later. First of all the problems of China will be considered in detail, as these have a very great bearing upon the future of the rest of the world as well as of Japan. But mention must be made of the fact that, during the last five years especially, Japan has made rapid strides in increasing her commercial interests on the mainland of Asia. Various ports that were formerly under the control of the Chinese Government are now controlled by Japan. In Northern China that fact has been of serious consequence to British commercial interests.

Modern Port Development.

The two outstanding factors in the Far East which make port development work different to that carried out in Britain and many other parts of the world are (1) cheapness of labour; (2) the terrific force of winds and waves due to typhoons.

Both of these factors demand that engineers who are responsible for that class of work shall be experienced in Far Eastern conditions.

It is not unfair to say that, although Japanese engineers have done important port works in their own country, and on the mainland, yet in China and in the Southern Pacific European engineers have been responsible for the most important works. At the present time there are no Chinese engineers capable of designing and carrying out such difficult work, but no doubt they will be able to do so in time. Nor are there any Chinese contractors with the financial and technical resources needed for such work; although European engineers find Chinese contractors useful for smaller sub-contracts.

The Early Days.

It is claimed by the Chinese that they have a record as far back as the Chow dynasty (1122-249 B.C.) of trade between Canton and eight neighbouring nations. The silk and porcelain of China first brought the fame of the country to Europe, but the early traders were concerned with an overland passage to India, whence the silk found its way to Rome.

It is, however, clear that the Phœnicians, Carthaginians, Syrians and other peoples of Western Asia knew the sea route to China before the Han dynasty (206 B.C.), although it seems doubtful whether Kattigara, mentioned as the extreme Easterly point visited by their ships, was the name given to Rangoon, Malacca, or Canton.

It is worth noting that the Canton Inspectorate of Maritime Trade was established in the eighth century, and, from the earliest times of sea-borne commerce in the Far East, junks sailed from Canton to Ceylon, India and Indo-China.

Far Eastern Ports—continued

The publication of a report by Marco Polo (1271 A.D.), who had journeyed to China overland, made adventurous mariners in Europe seek a sea route to the Indies, which term included China, a land they believed to be full of riches.

The Pioneers.

Direct trade between Europe and China commenced in A.D. 1516, when Perestrello sailed from Malacca in a prospecting expedition to China. A year later another Portuguese, Andrade, arrived in Canton with two ships and received permission from the Viceroy to trade. Subsequent troubles in Canton and other ports in S.E. China led the Portuguese to establish themselves in Macao in 1557.

During the 18th century Macao was the chief port for Western trade with China, because of its proximity to the then most populous city in China, Canton. That river port is about 100 miles inland from the sea. European ocean-going vessels have never been able to reach Canton. China coasting vessels use that port. Macao is situated at one of the delta mouths of the Canton River. It is now of no importance as a port.

Trade with the East India Company and Canton nominally began in 1680, and the Company had a monopoly of British trade until 1834. Canton was, until 1842, the only port in Chinese territory open to foreign trade. The British and other foreign merchants lived in a compound, called the Factories. No European women were allowed to visit Canton, so they stayed in Macao. But the early spacious days could not last. The West wanted more trade with China. Treaties with China, from 1842 onwards, have led to the total number of ports (mostly river ports) where foreign Customs dues are collected, reaching a total of 47 in China.

In the early 17th century Europeans traded in Japan, but owing to the interference of missionaries with the politics of the country very little trade was done until Japan decided to seek foreign intercourse about 70 years ago.

The Importance of Hong Kong.

The cession of Hong Kong to the British in 1841, and its subsequent rapid development, has made it one of the largest ports in the world. The development of Hong Kong led to a great diminution in the trade of Macao, which is now of insignificant importance as a port, and is unlikely to become of any importance in the future, although unsuccessful efforts in port development, to attract more shipping, have been made in recent years.

Many of the great ports of the world are ugly, being set on the shores of flat estuaries, and giving an impression of a collection of wharves, warehouses, mean dwellings and oil tanks. Shanghai and Liverpool are like that. But some of the Far Eastern ports—Singapore, Hong Kong, Nagasaki, etc.—are very beautiful with fairy islands, delightful foliage, a harbour like a lake enclosed by jagged hills; they provide scenery that thrills the visitors.

In considering the ports of the Far East we have to remember their comparatively recent development, as well as



Sampans, Canton Harbour.

the great length of coast line, and the formation of the land. The ports in Japan—Yokohama, Kobe, Nagoya, Nagasaki, etc.—have grown rapidly in importance in this century. On the mainland of Asia there are, on the coast, Vladivostok, Dairen, Tsientsin, Chefoo, Tsingtao, Shanghai, Foochow, Amoy, Swatow, Hong Kong and Pakhoi in Russian, Japanese, Chinese and British Territory. There are numerous ports inland on the rivers in China, the most important being Canton in the South and Hankow in Central China on the Yang-Tse-Kiang; that river is navigable at certain periods of the year to ocean steamers and large warships 600 miles inland, from the coast, up to Hankow. None of the other river ports in China can berth large ocean-going steamers, but many river craft carry the commerce to and from the river ports and the coast. Further South than Pakhoi there are ports in French Indo-China, Dutch East Indies, Malaya; nor must we omit mention of the Philippine Islands.

Some of the most important work, in connection with port development, carried out in recent years in the Far East has been accomplished by the Netherlands Harbour Works Co. of Amsterdam. That firm was formed in 1912, and in 1923 the firm of contractors "Grotuis," which constructed the harbours of Macassar and Belawan, in the Dutch East Indies, was merged into the first-named firm, thereby considerably increasing its plant and adding to the ranks of its technical staff a number of highly-skilled and experienced workers.

It may be said that this firm has specialised in carrying out harbour schemes, erecting equipment and accessory works such as reclamations, etc., in the Far East. The accompanying pictures show some of the methods adopted to check the force of the seas.

Their most notable works in the Far East are given below.

In Shanghai (1912-16) some 5,500,000 cubic yards were dredged and 5,320,000 cubic yards reclaimed by wet process; the reclaimed area was 2,500,000 square yards.

In Chefoo (1915-21) 2,300,000 cubic yards were dredged. The stone quarried was 890,000 tons; the concreting and masonry was 130,000 cubic yards; the breakwaters totalled 2,600 feet in length and the moles were 5,873 feet in length. The quay walls were 600 feet in length.

Enormous works were carried out in Macao, the Portuguese Colony about 40 miles south of Hong Kong (1922-27). These works will be described in detail in a later issue.

In Hong Kong (1924-26) extensive works of dredging, construction of quay-walls, etc., were accomplished. A further contract in Hong Kong was fulfilled in 1927-29.

A bund wall with back-filling was built in Canton (1930-31).

A big contract at Hulutao (N. China) involving breakwaters 5,100 feet long, quay walls 3,800 feet long, dredging and reclaiming works with retaining-walls 7,500 feet long, will be described in detail in a later issue.

At Amoy (1931-33) a bund-wall was built. And in Hong Kong (1932-34) a slipway for ships 3,000 tons weight was constructed.

All of these works have been successfully carried out and have greatly encouraged other works to be planned for future port development in the Far East.



A Typical Typhoon Shelter (natural) off the China Coast.

Far Eastern Ports—continued

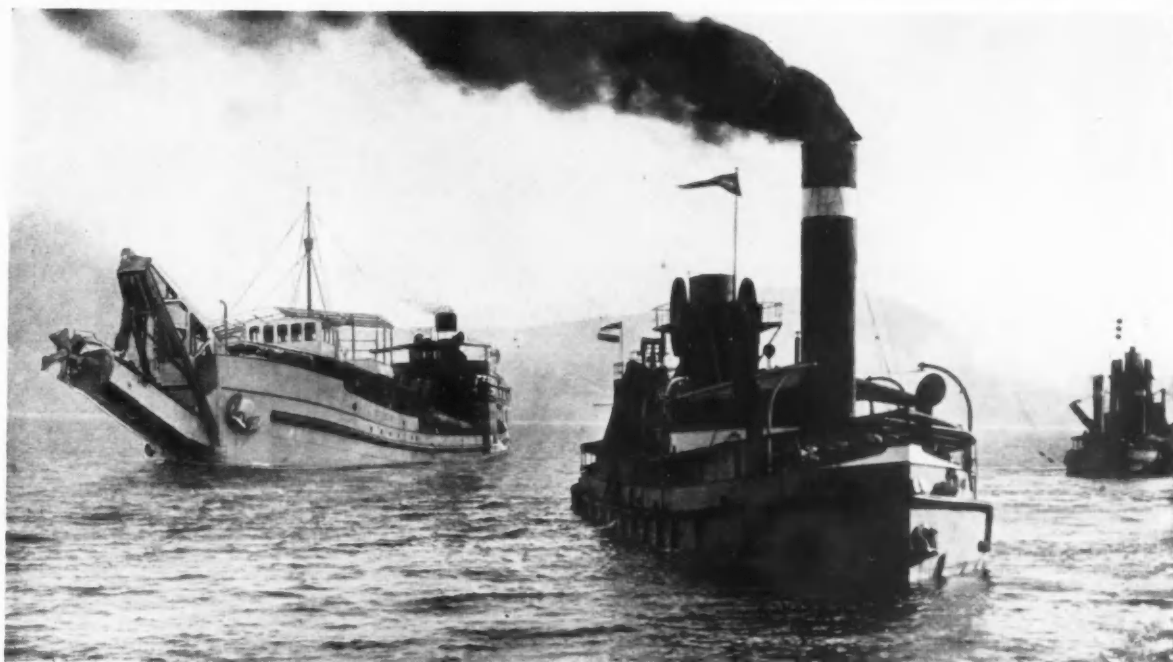
The Coast Line of China.

In order to appreciate the development of the ports of China, it is essential to remember that the coast line south of the mouth of the River Yang-Tze-Kiang is very different to that of the north.

A massive spur of the Himalayas crosses China from India to the Pacific forming a watershed. Throughout its course this mountain range throws off smaller spurs to the south and east. All of these jut out into the sea. The result is that all along the Southern sea-board of China there is a continuous belt of almost innumerable rugged islands. These islands, with the promontories facing them on the mainland, form, along a coast, of 1,200 miles in extent, a remarkably close series of the safest, land-locked harbours. Many of them are at once easy of access from the sea, and large enough to contain the whole British navy. From a commercial point of view many are useless, because the hinterland is not conducive to port development.

an inland canal—the Grand Canal—has been constructed, beginning where the Northern coast-line begins, and running parallel with it throughout its extent for about 1,000 miles, as a medium of traffic, proves that the Northern Chinese are not a maritime people.

The sea invites man to conquest, to profit and to acquisition by trade. The land attaches man to the soil. On the sea men put their property and even their lives in danger, and it is that very fact which elevates sea traffic and makes it something brave and noble. The mariner must have courage; but bravery must be associated with prudence and even craft, since he has to deal with the most uncertain and deceitful element, the sea. To that deceit and force, from Nature, man opposes his own handiwork, a vessel, relying merely on his courage and presence of mind for safety. He passes from the firm land to the unstable sea, taking with him his fabrication. And the ship, this swan of the sea, with its light and rounded movements, traverses the watery plain and circum-



Powerful equipment enables the Netherlands Harbour Works Co. to overcome technical difficulties. Some of the larger floating dredgers are depicted above. From left to right: the Hopper-cutter-suction-dredger "Rotterdam" steaming from Holland to China, the Bucket-dredger "Karang" homeward bound from Hong Kong and the Bucket-dredger "Hong Kong."

The British Crown Colony of Hong Kong includes Hong Kong Island, a member of this belt of islands. One of the finest harbours in the world, and its geographical position vis-a-vis China's great southern waterways, has transformed Hong Kong Island from its derelict condition of 1841, to a mighty entrepot of commerce in 1936. It is comparable to Alexandria, at the head of a great river system. The Pearl River has a delta mouth adjacent to Hong Kong. Forty miles inland it splits into a vast network of streams that wind through a densely populated and very fertile area. Nearly all of the imports and exports for South China are distributed from Hong Kong along the rivers. Moreover, Hong Kong is a distributing centre for goods to and from Europe, the Americas and Southern Asia, Australia, etc.

Unlike South China and Japan, the Northern Coast of China has practically neither harbour, nor islands, and so has offered no inducements of facilities to its inhabitants to go to sea.

We shall realise, later, that efforts have been made in recent years to remedy these defects, but it is desired to emphasise, now, the very great difference in the coast lines of China situated South and North of Shanghai. That difference is reflected in the temperaments of the people living in those parts. The enterprise of the Japanese is due, in no small measure, to their rugged coast line. In the Far East the Japanese and the Southern Chinese have certain characteristics resembling those of the Anglo-Saxons. They are the characteristics of a maritime people.

Far Eastern Mariners.

The Southern Chinese who have occupied the coast line with natural harbours are hardy, daring and adventurous mariners and fishermen. With the partial exception of the natives around the mountainous promontory in the province of Shantung, which includes the ports of Hulutao, Tsingtao, Weihewei and Chefoo, the inhabitants of the Northern coast-line are about the tamest of the Chinese. The very fact that

navigates our planet. It is an instrument that reveals in a marvellous manner man's courage, his understanding and his powers of invention. But it has increased in size and in draught; deep harbours and proper port facilities are now essential for the safety of vessels and speedy handling of their cargo.

It is due to the great difference in the coast line of North and South China that we find such a contrast in the characteristics of the North-Eastern and South-Eastern Chinese people. It is also due to this difference in coast line that, on the China coast, the finest natural harbour and the best facilities for ship repairs are to be found at Hong Kong. The situation of Shanghai, at the mouth of China's biggest waterway and artery of commerce, has made that city the most populous and, as a trade centre, of paramount importance in China. But, as will be described later, there have been past difficulties to be overcome in Shanghai to make it a modern port that have never been encountered in Hong Kong.

On the other hand, the geographical situation of Shanghai has led to its amazing development as one of the greatest ports in the world. The engineering difficulties surmounted are of intense interest, and will be described in a later issue.

The maritime characteristics of the South-Eastern Chinese have made them a great factor in the development of Malaya, the Dutch East Indies, and many other ports of the world. They have been adventurous and enterprising. Hundreds of thousands have left their homes in South China to emigrate and settle elsewhere. They have, in the mass, acquired wealth and become admirable citizens under a foreign flag.

Practically all of the ships that sail from one coast of the Pacific to another carry Chinese crews, stewards, etc. These also are from the South-East part of China.

The West and the Far East.

China tea, commercially, is not of the importance it was a hundred years ago, being ousted by the products of Ceylon,

Far Eastern Ports—continued

India, and Java; yet some trade remains. The three ports of Foochow, Amoy, and Swatow, with riverine harbours, in South China, will always be associated with the great days of the tea trade and the famous "China clippers," sailing vessels that raced from China to London for the prize and fame of being first with a cargo of the new season's tea.

Nor must mention of "The Opium clippers" of the past be omitted; of these Commander Basil Lubbock writes: "The captains of the little opium clippers, not one of which exceeded 500 tons register, had to navigate unsurveyed, uncharted waters full of reefs and shoals, of roaring water-spouts, rippling currents and black raging squalls. They had . . . to battle to the death with the screeching typhoon of the China sea."

"These fine-lined, well-built, heavily-rigged clipper barques, brigs and schooners, sailing under the British and American flags, not only trained an incomparable set of seamen for the Mercantile Marines, but were the chief means whereby China and Japan were opened up to the outside world."

Parsee, Bengalee, Malay, Chinese and Jew contended with the Britisher, the American, the Dutchman, the Portuguese, and the Spaniard for the spoils of the Far East in the early

for them are not essential, although wharfage is now available in Hong Kong.

The depth of water available at Shanghai, ports in Japan and on the Pacific coast of Canada and the U.S.A., are given below. Hong Kong Harbour can accommodate a ship of any size.

Ports	Maximum Depth of Water in the Channel or on the Bar attained at		Open Quays Available at L.W.O.S.T.
	L.W.O.S.T.	H.W.O.N.T.	
Shanghai	25	31	35
Kobe	36	-	36
Yokohama	33	37½	35
Victoria	30	36	30
Vancouver	35	43	35
Seattle	600	607	43
Portland	33	37½	28
San Francisco	32½	36	35

From the above it is fair to infer that ships with a draught of 34 feet are unlikely to frequent Pacific ports for some years to come. Quay walls built to accommodate vessels drawing 34 feet will require 36 feet depth of water alongside at L.W.O.S.T.



Chinese Junks. Thousands of these sailing vessels sail the rivers and the coast line of China carrying cargo.

days of the 19th century. There were only the natural harbours to shelter the vessels against the dreaded typhoons, with wind velocities up to 130 miles per hour. There were practically no man-made port facilities in those days.

The Spaniards, in the 16th century, appeared in Canton, using Manila as their base. The bulk of the trade between China and the Philippines was, however, in the hands of the Chinese. The trade has developed steadily during this century since the day when the flag of the United States of America was first flown in the Philippine islands.

The first American ship to reach China arrived in 1784, and from the outset American shipping rapidly grew in volume. There came a decline due to the Civil War in the U.S.A., and the change from wooden to iron ships. But the Americans opened up the ports of Japan to foreign trade. In recent years, especially since the war, we have seen a great increase in the tonnage of American shipping in the Far East.

It was chiefly the initiative of the early British traders that led to the creation of what were—and still are—called Treaty Ports in China (1842). The subsequent history of British Commerce in China is really the tale of the commerce of China, for Great Britain has been the leader in the trade, shipping, industry and finance, until to-day. Japan and the U.S.A. are now keen competitors in shipping, industry and finance.

In these days, with ships of 20,000 tons and upwards frequenting Far Eastern waters, port facilities are of the utmost importance. Large sums of money have been invested in wharves, docks, "godowns" (store-houses) and repair establishments in the Far East. In that respect Hong Kong is fortunate in that it is the terminal port for shipping plying between the Far East and the Americas, and for certain lines from Australia to the Far East. Yokohama is the terminal port for most of the ships plying between Europe and the Far East. In Hong Kong, Shanghai and Yokohama there are facilities for general ship repairs.

Pacific Port Developments.

As ships in the Pacific may come through the Suez or the Panama Canal, it is obvious that the size of vessels will be affected by their present depths and projected improvements. It is unlikely that any ships of the size of the big Atlantic liners will engage in the permanent trade of the Far East. From time to time large vessels, such as the "Empress of Britain," the "Aquitania," etc., appear in the ports of the Far East, on round-the-world tourist trips, but as they are concerned with passengers only, wharfage and dock facilities

Coasting Steamers.

Some idea of the enormous proportion of the coasting trade done by coaster-steamers (about 5,000 to 10,000 tons), river steamboats and junks can be obtained from Hong Kong figures. In a "boom" year (1923) of the value of merchandise exported 81½ per cent. was borne by coaster-steamers, river steamboats and junks and 15½ per cent. by ocean-going steamers. For imports the figures were 66½ per cent. and 33½ per cent.

Figures for the maximum draught (fully loaded) and length of vessels frequenting Hong Kong are given below, as they give an idea of the vessels frequenting Far-Eastern ports.

Class of Vessel	Maximum Draught Fully Loaded in ft.	Length (overall) in ft.
Ocean-going	32	627
Coaster	22½	325
River Steamboats	13	290
Junks	11	70
Barges	7½	80

These coasters are used for inter-port trade on the Pacific and distribute cargo from Hong Kong and Shanghai to China ports at which ocean-going vessels do not call.

The following table gives the controlling depth of water at L.W.O.S.T. to or at the Far-Eastern coast ports mentioned therein, and the draught to which vessels may load to enter or leave these ports at high water or neap tides.

Port	Available Depth in approach channels or at the port L.W.O.S.T. in feet.	Maximum Draught to which vessels may be loaded to enter or leave at H.W.O.N.T. in feet.
Bangkok	4 to 6	11 to 15
Koh-si-chang (outside Bangkok bar)	Vessels can load to any draught	
Saigon	23	25½
Haiphong	15½	24
Hongay	12	20
Canton	7½	14
Swatow	16	18
Amoy	Vessels can load to any draught	
Foochow	8 to 9	24½
Shanghai	26	28
Hong Kong	Any draught in the stream	

The International Congress of Navigation, London, 1923, considered that a port providing 30 feet of water L.W.O.S.T. may be considered a first-class port. And, except for the Atlantic service, it is difficult to justify a quay side of more than 35 feet at L.W.O.S.T. for many years to come.

Far Eastern Ports—continued

The Search for Far Cathay.

The story of the Far Eastern ports is closely intermingled with the romance of the early British pioneers of commerce. The drama of their sustained efforts to establish trade between our own small island and the vast and populous Empires of the Orient forms a tale unique in hazards, marvellous in episodes of unusual bravery, and astonishing for the enterprise and tenacity of purpose revealed.

To reach the riches and the markets of the far-distant Cathay became the aim alike of statesmen, merchant and mariner, and out of their efforts grew, not only Britain's seapower, but, in a great measure, her overseas Empire.

That first voyage from England for "the discovery of Cathay" was the beginning of a new era in navigation and in world history. The directing minds in London had great vision and wonderful perseverance in the face of many discouragements. But first in our thoughts are the countless brave British sailors and bold merchants who met, without complaint, the risk of making long sea voyages and residing in countries where piracy and racial hatred and uncharted seas made life unsafe, and where disease was rampant.

Changes are taking place rapidly in China. It is considered "news" for headlines in English papers when fighting and banditry takes place, but when ports are developed, quays built, harbours dredged and bigger ships arrive in the Far East, nobody thinks that is "news." But the big square lateen sails of the junks are passing down the river of memory with the clumsy vessels they drive. Steamships, railways, roads, radio, and mines are bringing these changes to pass, not only in the Far East, but in all parts of Asia as well. The port of Shanghai has a population exceeding three millions; and it seems certain that one day it will be the most populous city in the world, for the imports and exports of the vast Yang-Tse-Kiang basin must pass through it. In addition, it is already a great industrial centre—both the Liverpool and the Manchester of China.

Thousands of young Chinese have received, or are receiving, a modern technical training. The English language is becoming the language of commerce in the Far East. "Pidgin English" is passing away with other picturesque and uncomfortable features of life in Far Eastern ports. Although there is only one written language for the whole of China, there are numerous dialects; Chinese from the ports of Shanghai, Foochow, Amoy, Swatow and Canton speak in different dialects, and to converse with each other, if educated,

use the English language, as do many Japanese and most of the foreigners in the Far East.

The following tables will give the reader some idea of the great importance of the Far East to British shipping interests.

Millions of pounds sterling of British capital are invested in wharves, godowns, docks and ship buildings and repair establishments in China.

TABLE I.

Vessels Entered from and Cleared for Abroad in Chinese Ports: by Flags.

Flag	Total 1935	
	No.	Tons
American	1,577	3,711,594
British	13,341	18,541,804
Chinese	47,123	7,022,430
Danish	347	898,535
Finnish	3	8,347
French	379	1,252,784
German	457	1,871,266
Greek	31	88,081
Italian	78	445,469
Japanese	5,105	9,197,376
Netherlands	393	1,358,867
Norwegian	889	1,839,226
Panamanian	17	61,833
Portuguese	3,255	829,008
Swedish	78	293,525
U.S.S.R. (Russian)	32	62,436
Others	6	21,790
Total, Jan.-Dec. 1935	73,111	48,105,571

N.B.—Tables I. and II. are from the Chinese Maritime Customs Returns. Hong Kong is considered "Abroad." A number of the Chinese vessels clear to and from Hong Kong and Foreign ports. While, from the above table the average tonnage of British vessels works out at about 1,400 tons, that of Chinese vessels averages 160 tons about.

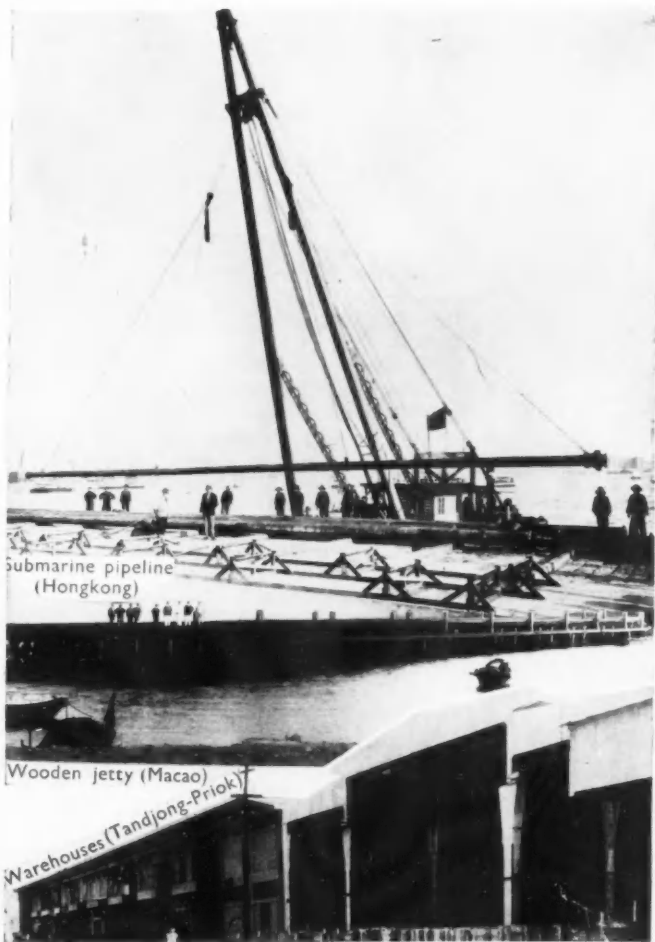
TABLE II.

Vessels Entered from and Cleared for Abroad in China: by Ports (excluding Hong Kong)

Port	Total 1935	
	No.	Tons
Aigun	...	No longer under the control of Chinese Maritime Customs Service
Harbin	...	
Hunchun	...	
Autung	...	
Daren	...	
Newchwang	...	
Chinwangtao	454	882,946
Tientsin	1,430	2,169,026
Lungkow	1,507	293,139
Chefoo	1,625	1,020,334
Weihaiwei	1,203	517,304
Tsingtao (Kiaochow)	1,435	3,601,419
Yochow	2	10,416
Hankow	330	890,520
Kiukiang	5	19,819
Wuhu	235	449,418
Nanking	68	198,403
Chinkiang	26	81,002
Shanghai	3,678	16,836,787
Ningpo	77	122,474
Wenchow	17	3,671
Santuo	17	11,609
Foochow	276	347,052
Amoy	955	2,354,139
Swatow	2,861	4,170,585
Canton	16,530	6,658,320
Kowloon	21,034	2,007,592
Lappa	8,732	984,853
Kongmoon	3,763	1,373,559
Sanshui	2,530	891,337
Wuchow	2,536	919,380
Kiungchow	852	947,119
Pakhoi	320	341,567
Lungchow	613	1,790
Total, Jan.-Dec. 1935	73,111	48,105,571

Waterways of China.

The bulk of the cargo that moves inland in China is carried on the waterways. There are not only the many navigable rivers but an enormous mileage of canals and navigable lakes. In recent years, especially during the last five years, great developments in road construction in China have taken place, but in many cases the roads are tracks not yet suitable for lorry traffic. In any case, the total mileage of roads and railways in China is small, as compared with that of the navigable waterways. As was recently stated, "Wherever the Chinese have found a navigable river they have, by a sort of instinct derived from pre-historic times, endeavoured to utilise it." In addition, they have constructed many canals, including the famous Grand Canal, along which goods are carried from Hangchow in Central China, to Peiping (formerly Peking) in the North, a distance of about 1,000 miles. The large lakes also assist the volume of cargo carried in China by water.



Harbour Works in the Far East carried out by the Netherlands Harbour Works Co. The pictures above show some of these structures built at various ports.

Far Eastern Ports—continued

The three large river systems of China are shown on Map 3. A glance at that map will show the great importance of the huge area drained by the Yangtze and its tributaries. That explains the great proportion of the volume of imports and exports shown under the heading "Shanghai" in the annual returns of the Chinese Maritime Customs Service. Hong Kong, being a "free port," does not figure in these returns.

The rise in the level of the water of China's rivers create unusual problems. At Hankow, in most years, the difference between highest and lowest water is about 100 feet. During the big floods in 1915 of the Canton River the water at Wuchow rose 82.3 feet above the lowest water level on record. At the highest stage the water passing Wuchow was 2,100,000 cubic feet per second. The average rise is 61 feet above lowest water mark. In 1924 in 24 hours there was a rise of 22 feet.

On a stretch of coast 60 miles in length in South China, four rivers debouch into the sea discharging, in the rainy season, about 2,800,000 cubic feet of water per second and an enormous volume of silt, affecting the harbours of Hong Kong and Macao and the river beds; improving by artificial works the flow in a few channels would increase the velocity and lower the river bottom by scouring.

On some of the waterways in China there are now European engineers with authority, and there are, each year, many improvements due to their efforts. The most important authority constituted by the Chinese Government in this connection is the Whangpoo Conservancy Board, which maintains a deep channel from Shanghai to the Pacific. It derives its income from a Conservancy Surtax on goods entering the port of Shanghai and on the sale of foreshore lands.

In 1905 the bar at the mouth of the river (Woosung outer bar) had a depth of only 15 feet at extraordinary low tides. That, and other defects, were becoming worse, so that, if regulation work on channels had not been undertaken, by this time Shanghai would have become inaccessible to large ships.

The river is now a reliable shipway, with a least navigable depth of 26 feet at extraordinary low water. As the neap-tides rise at least six feet there is, each day in the year, a through high-water depth of at least 32 feet.

The Harbour Lights and Buoys.

The first recorded light establishment on the Yangtze above Woosung—the anchorage near the mouth of the river—appears in 1861. This was a light vessel moored at Langshan crossing. In 1872 the first edition of the "List of Lights, Buoys and Beacons on the Coast and Rivers of China" appeared, when, in addition to the Langshan lightship there were 27 lighted aids, all between Woosung and Hankow.

In December, 1935, there were fixed 12 new gas-lighted buoys, and ships can now proceed by day and by night from Shanghai to Hankow and vice versa.

The following table shows the progress made in lighting the lower Yangtze for night navigation.

LOWER YANGTZE LIGHTS FROM WOOSUNG TO HANKOW.

Year	Lightships and Beacons	Light Buoys	Total
1861	1	...	1
1870	22	...	22
1880	33	...	33
1890	35	...	35
1900	41	...	41
1910	64	1	65
1920	98	1	99
1930	133	2	135
1935	145	16	161

Terrible floods, owing to neglect of river conservancy measures, have frequently adversely affected China. In 1931 the Yangtze overflowed its banks and submerged an enormous area of land, causing terrible loss of life and property.

Recently the Yellow River has again changed its course. In four months the waters flowed over the farms and villages of the large provinces of Shantung and Kiangsu, swallowing up rich agricultural land which sustained 500 people to the square mile. In four months there was formed a new river 400 English miles long, from one-half mile to 50 miles in width, entering the sea hundreds of miles south of its mouth.

It is estimated that \$2,000 (silver) would have prevented this disaster. It will now cost \$5,000,000 to repair the breach, if it ever is stopped. That is typical of Chinese neglect of engineering problems.

The water transport on the rivers is a matter bound up with river conservancy and reclamation schemes, many of which would be highly profitable if properly financed and carried out by trained experts. It is a problem bound up with the prosperity and trade of China, for it seriously affects, not only transport but agricultural products in China. And since about 70 per cent. of the 400,000,000 people in China work on the land the wealth they produce must affect foreign trade.



Map 3 showing the Three Great River Systems of China, viz.: Yellow River, Yangtze and Canton River. The thick lines separate the drainage areas of the different rivers. Periodical burstings of Yellow River southwards between X and Y. Ancient Bed of Yellow River from A to B. Original Mouth at C. The dotted line ----- shows line of Grand Canal.

In 1933 the Whangpoo Conservancy Board employed seven foreigners, all experts, and 756 Chinese, including a few engineering graduates.

Further details of this remarkable organisation, which demonstrates the tremendous economic advantages to China of the employment of foreign experts for technical problems, will be given later. Meantime, it must be emphasised that, but for the work carried out by the Board in recent years, Shanghai would have ceased to be a port of call for large ocean-going vessels. That would have resulted in the dwindling of Shanghai to a place of secondary importance instead of, as it is to-day, the premier port in China.

The Chinese Maritime Customs Service employs a number of technically-trained foreigners, and is also a remarkable example of the advantages of international co-operation in the endeavour to increase trade. That efficient organisation not only collects the revenue required to pay bond-holders their interest in Chinese loans, guaranteed by the Customs Service, but it maintains the lighthouses on the China Coast, has an efficient modern preventive branch, assists shipping in many ways, and helps in maintaining some of the waterways.

The Peril of Piracy.

It has been stated that the movement of cargo on the inland waterways of China is expensive, as compared with freights on ocean-going steamers. It is said to cost nearly as much to move goods about 600 miles up the Yang-Tze-Kiang from Shanghai to Hankow as from Shanghai to Liverpool, a distance of about 10,000 miles. That is largely due to excessive taxation. And in many cases piracy increases the risk. During a voyage in 1934 made by the writer on British vessels from Shanghai to Chungking, up the Yangtze (1,300 miles), armed

Far Eastern Ports—continued

guards and armoured shields on the side of the ships protected us against rifle fire from the banks of the river. Many ships on the China Coast carry armed guards.

A great impediment to trade on the waterways is the fact that officials in the various river ports impose local taxation, unauthorised by the Central Government of China. That is, of course, in addition to the Customs dues paid at the ports of entry to China.

The first contract entered into by the Netherlands Harbour Works Co. was with the "Whangpoo Conservancy Board" for dredging and reclaiming works in order to improve the approaches to Shanghai. Three Bucket-dredgers, one Pumping-dredger, six Tugs and sixteen Barges, besides auxiliary plant were employed from 1912 till 1916 in carrying out this contract.

The above-mentioned dredgers were towed the 10,000 miles' trip from Holland to Shanghai. This was the longest and biggest tow undertaken up to that time.



We were told that a motor-car selling in England at £300 could not be sold under £2,000 at Chungking, mainly because of the taxes that had to be paid on various stretches of the inland waterways.

At present the Central Government of China, in the Capital, Nanking, can only enforce its authority in about five out of the eighteen provinces of China; it now has no authority in the huge areas of Manchuria, Mongolia, etc., which were ruled for centuries by Chinese dynasties. The political difficulties, both internal and foreign, in China since the revolution in 1912, which aimed to establish a Republic, has had a disintegrating effect on Chinese Central Government authority.

Yet, in spite of those facts, shipping increases each year in volume on the China Coast. And to improve port facilities is the very definite policy, not only of the Central Government of China, but of Provincial Governments that have "home rule" to such an extent that they take very little notice of the Central Government. Progress of a very real nature in all engineering work is being made in China to-day, in spite of all the political troubles. Foremost in the minds of all foreign educated Chinese is the desire to improve the communications of the country. These foreign educated Chinese now hold many of the key positions in the various Governments.

Wasted Effort in China.

Typical of their outlook is a recent statement by one of them that whereas 20 per cent. of China's man-power is employed in transport, 5 per cent. is sufficient in Western countries. And yet the actual transport in China is relatively meagre, of poor quality and expensive.

A detailed description of the development of Far-Eastern ports will appear in future issues. The above general outline will enable the reader to realise that there has been, in recent years, growth and great activity in the ports on the Western Coast of the Pacific. And it is fully realised in China that commerce will increase and that better port facilities will become available as the years go by. Meantime, we may well be proud of the leading position of the British in the general development of trade in the Far East.

The two most important ports on the China Coast are Hong Kong and Shanghai. Rivals, to some extent, they both clear, each year, about the same volume of shipping. Hong

Kong has many natural advantages, including a deep natural harbour denied to Shanghai, but the latter has an enormous hinterland, productive with alluvial soil and teeming millions of industrious workers, and criss-crossed by many thousands of miles of useful waterways. Both can flourish.

For more than a century the British have been the pioneers in shipping matters in China. From 1841 onwards it was their efforts, in the face of great opposition from Chinese officials—

not from Chinese merchants—that Treaty Ports, the only ports in China where foreign ships may load or unload cargo, were created. Above all, the transformation of a barren island Hong Kong, from a home of about 5,000 people (mostly pirates) to a huge port and a modern centre of the shipping industry, in less than a century, is one of the triumphs of the British race. The effect of that transformation upon China cannot be over-estimated, for Hong Kong has been an object lesson, adjacent to China.

Nor can history reveal any example, comparable to that of Japan, in the almost sudden creation of huge mercantile shipping interests and a powerful Imperial Navy. In almost every port of the world, and on almost every sea, the Rising Sun on the flag of Dai Nippon is to be seen to-day, whereas there was practically no foreign intercourse with Japanese sixty years ago. And we may take pride in the fact that, in maritime matters, the Japanese from the beginning of their modernising policy, sought out and accepted Great Britain and her marine work as a pattern. All of the original professors, in such technical subjects as engineering, naval architecture, etc., in Japan, went out from Britain to Japanese Universities. It is upon the foundations, well and truly laid by those pioneers, that the "Britain of the Far East" has built up its great mercantile marine and has developed its modernised ports, as well as the industries which have brought Japan vividly into the world picture.

For those reasons every Britisher must be interested in the maritime progress of the Far East. A beginning has been made, but the future holds unlimited possibilities. It is therefore imperative for the British nation, dependent on foreign trade for existence, to give great and thoughtful attention to maritime work in the Far East.

Moscow River Boats carry almost Four Million Passengers.

Nearly four million passengers have travelled on the Moscow River suburban boat lines during the summer, according to information received from the Moscow River boat administration. It is estimated that another half million passengers will be carried before the season closes. Last year slightly over 3.8 million were carried by these lines.

News from all Quarters

Belgium

THE August trade in Antwerp was most satisfactory, and is evidence, not only for the better development of Belgian trade since the devaluation of the Belga, but of the noticeable general improvement in world trade. 1,052 deep-sea vessels with a total tonnage of 2,062,341 tons arrived in the port. The average tonnage per boat was 1,960. This compares with only 986 vessels and 1.97 million tons in August, 1935. Details of the arrivals and tonnage according to the various nations as follows:—297 British ships, with 458,507 tons; 190 German, with 547,416 tons; 65 French, with 160,567 tons; 146 Dutch, with 130,923 tons; 63 Norwegian, with 132,588 tons; 65 Swedish, with 95,862 tons; 47 Belgian, with 92,012 tons; and 50 Danish, with 77,299 tons. The balance comprised American, Japanese, Italian, Russian, and vessels from smaller European countries. The bad effects of the strike have thus been completely overcome.

Brazil

A port which deserves attention is Paranagua. It has developed considerably during 1935, and in the first eight months of the current year, and the incoming tonnage is now estimated to be at the rate of one million tons a year. In 1935, 513 Brazilian vessels with 414,000 tons landed, second in importance being Germany, with 39 boats, and a tonnage of 109,000, followed by Great Britain, with 26 vessels, and 78,000 tons. A number of improvements have been carried out at the port recently, and its development is particularly favoured by the Brazilian Government.

In the port of Santos, too, there has been considerable improvement, and during the second quarter of 1936, 786 vessels with a tonnage of 2.4 million arrived, whilst 771 vessels with a tonnage of 2.39 million left. Nearly half the boats were Brazilian, about 15 per cent. were British, and a long way off follow Germany, Italy, and the United States.

China

Traffic in Hongkong shows a gratifying increase during the second quarter of 1936, as compared with the first three months. 5,420 ships with 5,246,000 tons arrived, compared with 4,822 boats and 4.9 million tons in the earlier period, and 5,511 vessels with 5.3 million tons departed, compared with 4,985 and 4.96 million tons in the first quarter of 1936. The British flag was of course predominant, followed by Japan, China, the United States, Holland, Norway, Germany, France, Denmark, Italy, Sweden, Portugal, and Panama, in this order of total tonnage. The value of imports during the two quarters under review rose from 107 to 124 million Hongkong dollars, and the value of exports from 124 to 148 millions.

In the Port of Dairen, the importance of which was specially stressed by the British Industrial Commission to Manchuria two years ago, the monthly tonnage figure is now exceeding an average of one million tons. The July figures show the arrival of 391 steamers of 1,069,126 tons, distributed as follows:—Japan 262, and 718,235 tons; China 89—126,615 tons; Great Britain 13—73,201 tons; Germany 7—48,700 tons; Norway 6—31,884 tons; Manchuria 4—5,608 tons; and Holland 3—21,290 tons.

France

The most interesting event in the development of harbours is the decision of the Havre authorities to apply to the Ministry of Public Works for financial assistance for an ambitious enlargement scheme to be carried out in this very important French port. In view of the Government's plan for the provision of employment it is more than likely that the plan will be accepted.

The first section provides for the widening by 30 metres, and the deepening by 10 metres of the Bassin dock, the construction of new turning bridges, the transformation of the North quay by the construction of a 'loading deck road' 7.5 metres in width and running along the whole length of the quay, together with various other improvements which will require an expenditure of 16 million Francs.

A second section is devoted to the reconstruction of the Ecluse Bridge for the trans-Atlantic traffic. The bridge dates from 1861 and is no longer suited to the requirements of modern traffic. This will require three million Francs.

The third section comprises the construction of a floating repair dock for large liners which will make it possible to reserve the Joannes-couvert quay for departing vessels.

During the first half of 1936, 1,065 foreign vessels arrived at Havre, and imported 1,411,000 tons of cargo. The most frequent flag was the Union Jack. 423 boats (427,000 tons)

came from this country, followed curiously enough by Panama with 22 boats—330,000 tons; Norway 88—190,000 tons; the United States 140—152,000 tons; and Germany with 93 boats—72,000 tons.

In Marseilles the tonnage of boats handled during the first seven months of 1936 reached 5.1 million, compared with only 4.6 million in the corresponding period of 1935. The number of passengers passing through the Port of Marseilles has also increased by 10,600 to a total of 349,500 in the same period.

The French Senate has approved the proposals for the development of the Port of Mostaganem in Algeria at a cost of 88 million Francs. A jetty of 650 metres' length, and a second jetty, apparently at right angles to the first, and with a length of 540 metres, will be constructed.

Norway

The harbour budget of the Norwegian Ministry of Public Works shows a steady rise. From 2½ million Kroner granted in 1934/35, and 3.2 million Kroner in 1935/36, the 1936/37 budget has risen to provide about 3.3 million Kroner for the ports. The Norwegian harbours taken as a whole are characterised by prosperity as their assets are rising, and their debts falling. The following comparative table will illustrate this fact.

	1926-27	1927-28	1928-29	1931-32	1933-34
	(In Millions of Kroner)				
Assets	103	105	108	109	111
Debts	52.6	52.4	51	49.3	47.4

The financial situation of the larger Norwegian ports by the end of the budget year 1934/35 were as follows:—

	Assets	Liabilities
	Million Kroner	Million Kroner
Oslo	40.7	14.4
Bergen	16.9	7.6
Stavanger	6.9	2.1
Kristiansand	3.7	1.4
Trondheim	9.8	5.7
Aalesund	3.5	0.2
Drammen	3.3	1.6

Denmark

The Municipality of Fredericia has definitely passed plans for the enlargement of the port in the east and west. An amount of three million Kroner has been made available for the new construction work, which was entirely obtained from the funds of the harbour authorities themselves.

Manx Harbours.

Isle of Man Tynwald has approved the estimates submitted by the Harbour Commissioners for the maintenance of the harbours of the island (including the Victoria Pier Buildings and Swing Bridge, Douglas; and the Queen's Pier, Ramsey) for the year ending 31st March, 1937, amounting in the aggregate to £22,173 5s. 3d., and has made a grant to the Harbour Commissioners of £17,447.

Reconstruction work to be put in hand includes:—(1) complete the reconstruction of Peel Old Pier Head, £500; (2) repair the Alfred Pier, Port St. Mary, £1,450; (3) repair the Douglas Quay Wall, £600; (4) reconstruct the public lavatories, Peel breakwater, £235; (5) remove the Douglas fog signal to new position, £600; (6) reconstruct the Harbour Master's Office, Ramsey, £1,500; total, £4,885.

Sea Defence Work.

Llanfairfechan Council has applied for sanction to borrow £7,650 for the purpose of erecting a retaining wall along the foreshore to prevent flooding by the sea and erosion. At the Ministry of Health inquiry into the scheme, Mr. William Muirhead, the Council's consulting engineer, said the main idea was to put down a structure that would prevent the movement of the material forming the foreshore in times of strong winds and high tides. Unless that movement was stopped, it would cause erosion, which, almost unconsciously, ate into the front. Records showed that the line of the tide was different to what it was ten or fifteen years ago. It was proposed to build along the front a wall 2-ft. high and 2-ft. thick, which would prevent water going on the promenade at high tide. On the landward side there would be a ten feet concrete path and on the sea side a stepped slope ending in another wall sunk into the foreshore. A series of groynes would also be constructed to retain some of the finer material.



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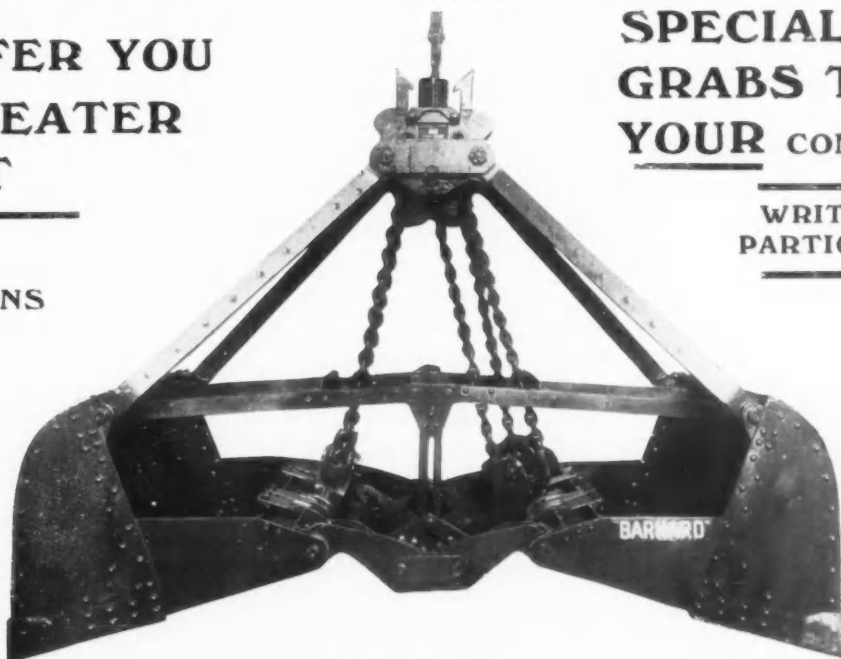
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The Port of Colombo

Liquid Fuel Imports.

The quantity of liquid fuel imported at Colombo during July, 1936, amounted to 18,082 tons, as compared with 16,996 tons in July, 1935. For the first seven months of 1936, 175,912 tons were imported, as compared with 174,401 tons in the corresponding period of 1935.

Liquid Fuel Bunkers supplied to Steamers.

Liquid fuel bunkers supplied to steamers in July, 1936, was 43 ships bunkered with 19,627 tons of liquid fuel, as compared with 41 ships with 20,638 tons in July, 1935. For the first seven months of 1936, the total number of ships bunkered was 311 with 151,185 tons, as compared with 296 ships with 155,762 tons in the corresponding period of 1935.

Coal Imports.

The quantity of coal imported during the month of July, 1936, was 25,516 tons, as compared with 44,884 tons in July, 1935. Altogether 252,260 tons of coal were imported during the first seven months of 1936, as compared with 266,626 tons in the corresponding period of 1935.

Coal Bunkers supplied to Steamers.

The number of steamers bunkered during July, 1936, was 54 with a total of 16,397 tons of coal, as compared with 58 steamers with 13,474 tons in July, 1935. During the first seven months of 1936, 465 steamers were bunkered with 137,176 tons of coal, as compared with 494 steamers with 143,213 tons in the corresponding period of 1935.

Number and Tonnage of Vessels Entered and Cleared.

The number and tonnage of vessels other than country craft engaged in trade, which entered and cleared at the Port of Colombo during July, 1936, and the first seven months of this year, with comparisons for 1935 and 1934 is as follows:—

	Vessels engaged in Foreign Trade		Vessels engaged in Coasting Trade	
	No.	Tons	No.	Tons
(a) Entered during July, 1936	198	919,198	2	4,499
" " " 1935	215	981,566	8	22,026
" " " 1934	215	985,761	5	16,127
During the seven months ended July, 1936	1,519	7,085,710	33	77,923
During the seven months ended July, 1935	1,560	7,144,476	32	90,178
During the seven months ended July, 1934	1,529	7,019,189	27	80,098
(b) Cleared during July, 1936	208	952,505	2	6,953
" " " 1935	221	989,161	2	5,572
" " " 1934	215	985,014	5	13,593
During the seven months ended July, 1936	1,541	7,253,921	21	65,854
During the seven months ended July, 1935	1,582	7,198,158	14	46,857
During the seven months ended July, 1934	1,513	7,045,889	21	72,467

Tonnage of Imports and Exports.

The tonnage of imports and exports at the Port of Colombo during July, 1936, and the first seven months of this year, together with comparisons for 1935 and 1934, is as follows:—

	During July		
	1934 Tons	1935 Tons	1936 Tons
Imports (excluding Coal and Oil)	75,908	74,227	84,618
Exports (" ")	68,009	55,063	52,408
Total	143,917	133,290	137,026
	During the seven months ended July		
	1934 Tons	1935 Tons	1936 Tons
Imports (excluding Coal and Oil)	588,262	590,466	619,615
Exports (" ")	435,285	332,240	311,355
Total	1,023,547	922,706	930,970

Oil Facilities Receipts.

The oil facilities receipts for July, 1936, were Rs. 101,820, as compared with Rs. 101,724 during July, 1935. The total receipts for the first seven months of 1936 were Rs. 603,242, as compared with Rs. 654,431 for the corresponding period of 1935.

Change of Address.

Nash Dredging & Reclamation Co., Ltd., have changed their offices to Palace Chambers, 9 Bridge Street, Westminster, S.W.1. Their new telephone number is WHIttehall 2423.

Notes of the Month

The Port of Rotterdam.

The Chamber of Commerce and Industry of Rotterdam has issued the statistics concerning the movement of sea-going ships in the New Waterway, and which are as follows:—

During August, 1936, 1,080 ships of 1,782,299 n.r.t. entered the Port of Rotterdam, as compared with 934 ships of 1,489,858 n.r.t. during August, 1935. The number of ships entering for the small ports in the environs were 208 of 332,229 n.r.t., as compared with 211 ships of 413,917 n.r.t. in August, 1935.

For the first eight months of the year, January to August, 1936, 8,246 ships of 13,510,711 n.r.t. entered the Port of Rotterdam, as compared with 7,232 ships of 11,750,558 n.r.t. in the corresponding period of 1935. The number of ships entering for the small ports in the environs of Rotterdam during the first eight months of 1936 were 1,640 of 3,297,531 n.r.t., as compared with 1,608 ships of 3,222,795 n.r.t. in the corresponding period of 1935.

After deducting the number of ships counted more than once in the different ports, the number of entrances in the month of August, 1936, amounted to 1,226 vessels of 1,970,672 n.r.t., as compared with 1,096 ships of 1,781,672 n.r.t. in August, 1935. For the first eight months of 1936, the total entrances were 9,343 vessels of 15,250,134 n.r.t., as compared with 8,374 vessels of 13,720,802 n.r.t. in the corresponding period of 1935. These figures are for the whole region of the Port of Rotterdam with its environs, comprising the delta formed by the mouths of the Rivers Rhine and Meuse.

The Port of Copenhagen.

The number of ships which entered the Port of Copenhagen during August, 1936, was:—From inland ports, 1,729 steam and motor-ships of 228,671 n.r.t. and 20 sailing vessels of 4,611 n.r.t. arrived. Shipping arriving from foreign ports amounted to 1,016 steam and motor-ships of 640,832 n.r.t. and 17 sailing vessels of 5,335 n.r.t. The total of steam and motor-ships and sailing vessels arriving from both inland and foreign ports for August, 1936, amounted to 2,782 vessels of 879,452 n.r.t.

The Port of Ghent.

During the month of August, 1936, 169 ships of 179,309 n.r.t. entered the Port of Ghent, as compared with 156 ships of 177,939 n.r.t. in the corresponding month of 1935. This is an increase of 13 ships and 1,370 n.r.t.

For the first eight months of 1936, 1,372 ships of 1,418,816 n.r.t. entered the port, as compared with 1,162 ships of 1,246,026 n.r.t. in the corresponding period of 1935. This is an increase of 210 ships and 172,790 n.r.t. this year.

Manchester Ship Canal Traffic.

The approximate monthly traffic receipts of the Manchester Ship Canal Company for the month of August, 1936, amounted to £97,100, this being a decrease of £7,612, as compared with the adjusted figures for August, 1935, which were £104,712. The total receipts for the first eight months of 1936 were £851,265, this being an increase of £24,107, as compared with the adjusted figures for the corresponding period of 1935, which were £830,158.

Stelcon Steel Plates and Flags.

An independent company, entitled Stelcon (Industrial Floors) Ltd., has just been formed for the sale in Great Britain and Overseas of Stelcon anchor steel plates and Stelcon steel clad flags, which for the past ten years have been handled by Langley London Limited, of 161, Borough High Street, London, S.E.1.

This development has been rendered desirable owing to the very big increase in Stelcon sales during recent times.

The new company comes into being immediately, and its address is: Cliffords Inn, London, E.C.4 (Telephone: Holborn 2916). Mr. F. A. Langley and Mr. T. Kilburn are directors of the company, and the staff has been recruited from Langley London Ltd., thus ensuring proper continuity of the business.

Dock Gate Chain Snaps.

One of the giant chains operating the gates of the Gladstone Dock, Liverpool, snapped recently just after the C.P.R. liner "Montcalm" left the Dock on her way to the Princes Stage. Part of the chain, which weighs nearly three tons, sank to the bottom of the lock. A repair gang, complete with diver, was on the spot in remarkably quick time, and the west gate was drawn to the side by a wire rope. The Gladstone Dock lock gates are the largest of their kind in the world. Each weighs over 500 tons. Although the chains used for opening and closing the gates are exceptionally strong, there are occasions when the strain is too great. A special staff is always on hand to deal with emergencies of this kind.

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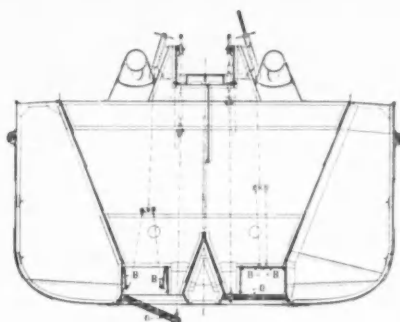
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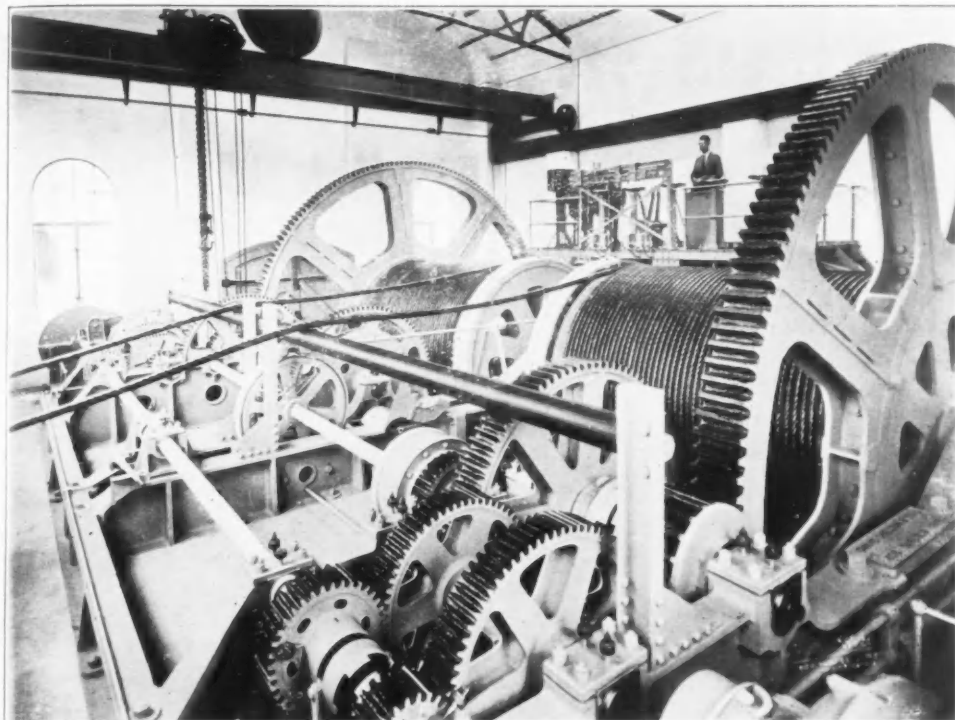
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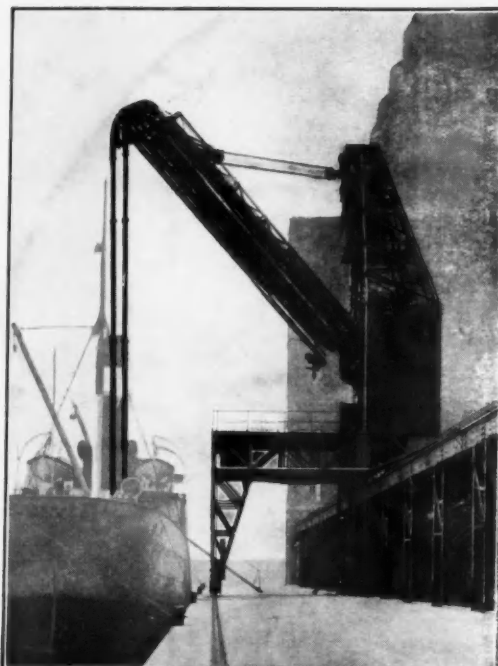
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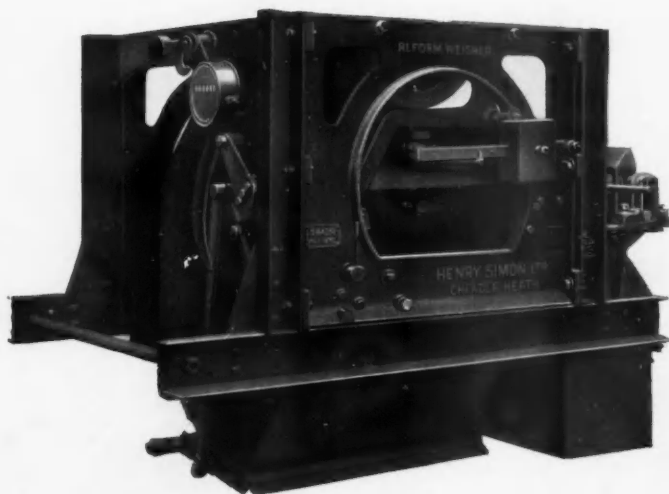
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